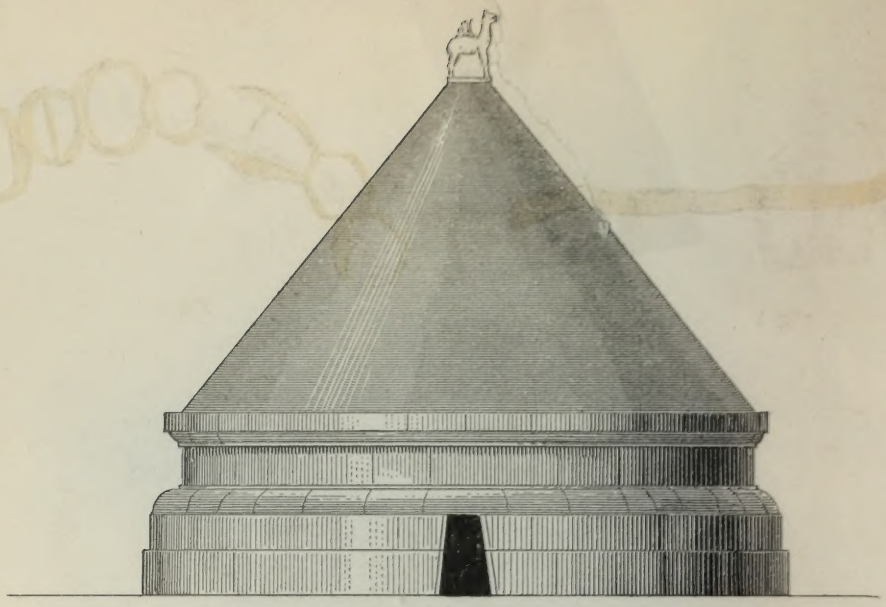
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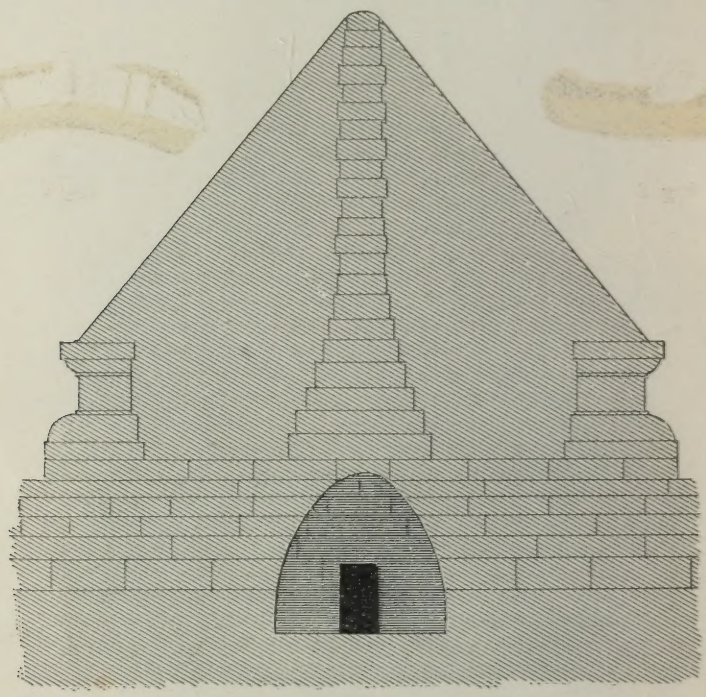

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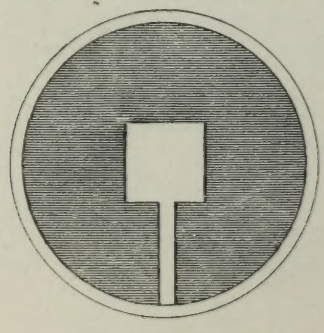
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Etruscan Tomb at Cornеto.



Sectional View through the center.



Burial Vault Beneath.

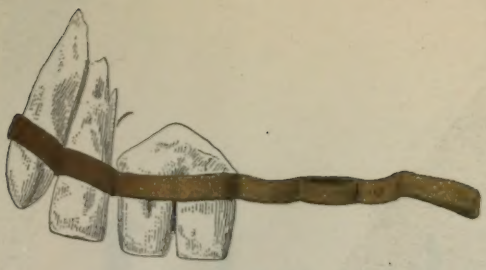


Fig. 1

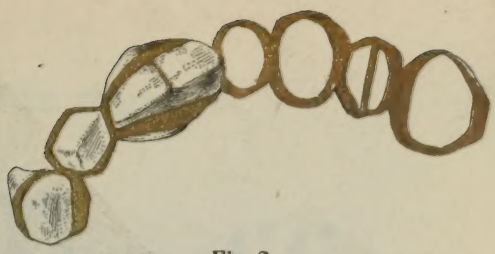


Fig. 2



Fig. 3

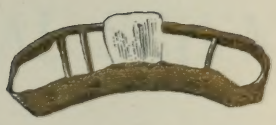


Fig. 4

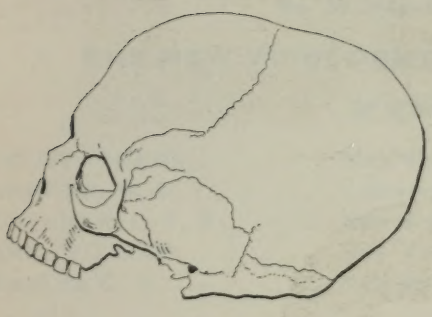


Fig. 5

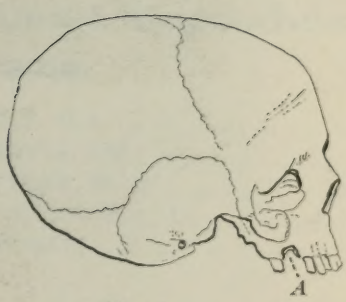
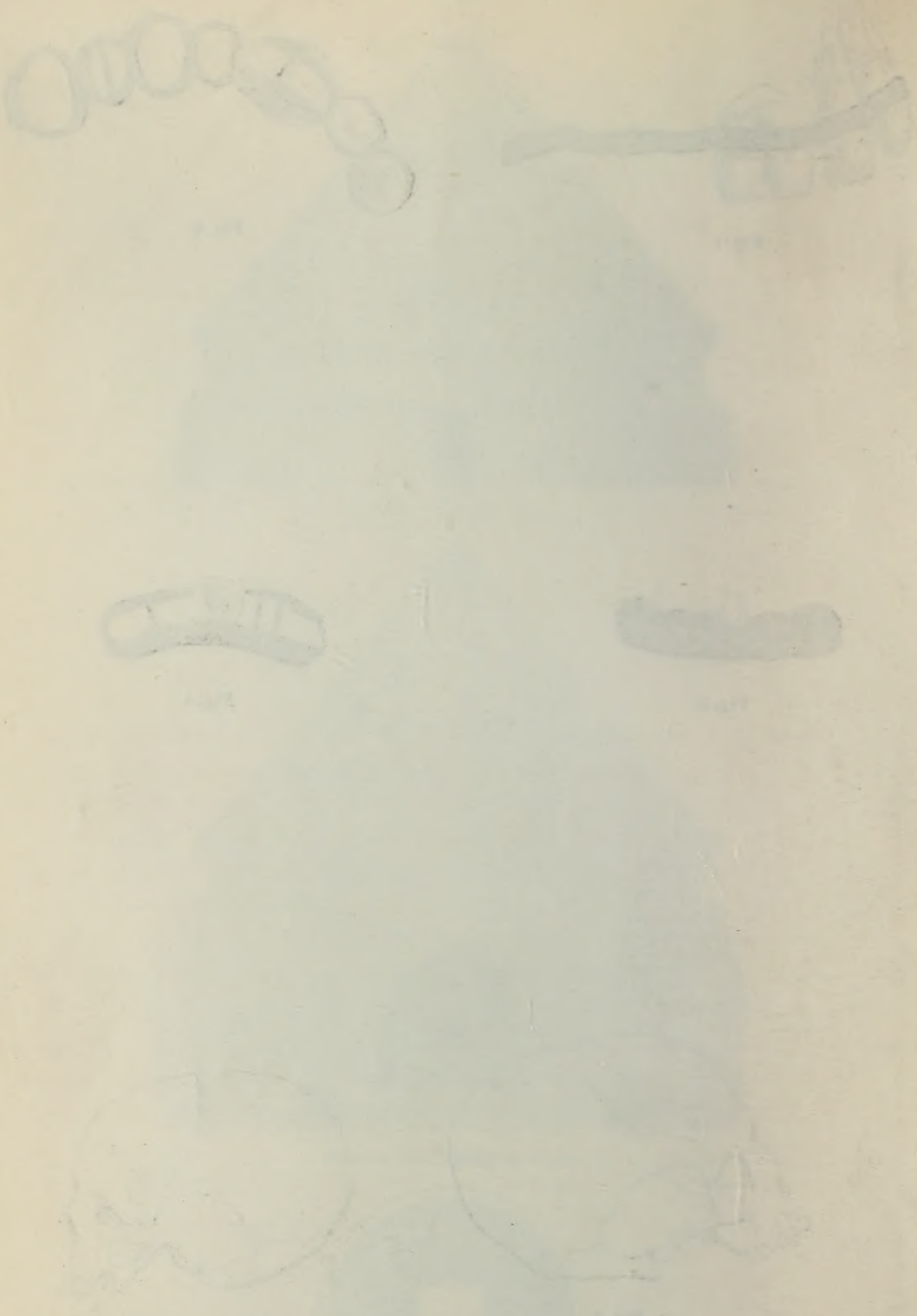


Fig. 6

Specimen of Ancient Etrurian and Roman Dentistry.



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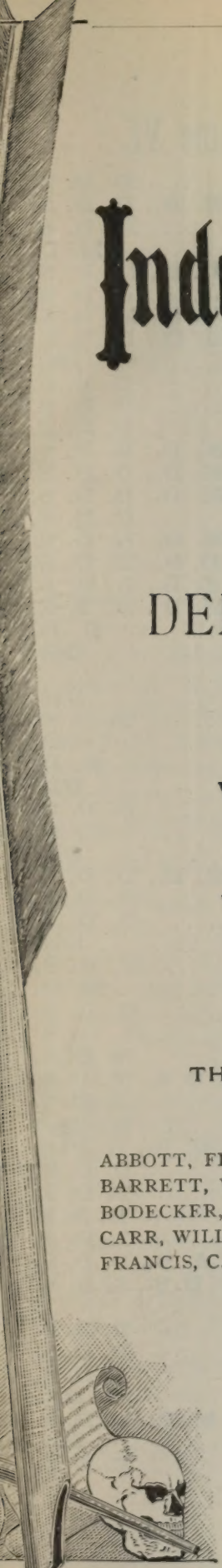
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Original Communications.

SOME EVIDENCES OF PREHISTORIC DENTISTRY IN ITALY.

BY J. G. VAN MARTER, A. B.; D. D. S., ROME, ITALY.

When, several years ago, I began to study the vestiges of the race of men which preceded the great Roman people, little did I think that I should find evidences of an advanced stage of dentistry among the relics of that wonderful prehistoric nation. Up to that time I had never found anything in dental literature to assist or guide me into the Etrurian *terra incognita*, but I determined to explore this archæological dark continent in search of evidence of dental weakness. I was aware that the task would not be an easy one, for the Etruscans, once a great and powerful nation, far advanced in civilization, science, and the arts, have been an extinct race for more than two thousand years. They left us no key to their strange language, and no history except that which is written in their tombs. But from these tombs, hidden in the bosoms of the earth for so many centuries, and practically unknown until recently, we now obtain conclusive evidence of a highly cultivated and intelligent race of men, and of the influences on them of a still earlier race.

Great credit is due the archæologists residing in Italy for their efforts in opening up these buried cities of the past, and bringing to light all we now know of Etruscan customs, manners, and history.

One of the localites fruitful in discoveries of Etruscan relics of especial interest to me is the city of Corneto-Tarquinius, near Civita

Vecchia, on the Mediterranean coast. Through the kindness of Prof. Dr. Helbig, a German archæologist in Rome, I was enabled, last year, to become acquainted with the mayor of Corneto, Sig. Cav. Dasti, an eminent Italian archæologist. By his kind permission I was afforded every facility for visiting many of the subterranean Etruscan and Roman tombs, with the privilege of examining at my leisure the exceedingly interesting and valuable collection of Etruscan relics in the Corneto Museum. It was in this museum that I found, carefully guarded with lock and key, the two specimens of ancient dentistry, the drawings of which are here presented. (See Plate 2). That there may be no gainsaying the authenticity of these specimens of ancient Etruscan and Roman dentistry, I procured from Sig. Cav. Dasti, who is the royal inspector of excavations at Corneto, a certificate, duly signed and sealed, of the date of the opening of the tombs in which these dental relics were found. I do not include it in this article, for want of space. I am assured by Prof. Dr. Helbig, who is an undoubted authority, that the tombs from which these early relics of dentistry were taken were virgin tombs, which date back four and five hundred years before the Christian era.

To enable the reader to understand how carefully the Etruscans guarded their dead, I have had drawings made of a family tomb as it appeared two thousand five hundred years ago, before time had smoothed these wrinkles off the face of the earth. (See Plate 1.) The Etruscan tomb here delineated is a probably correct restoration of one of the ancient sepulchres at Corneto-Tarquinius. The necropolis in which this was situated occupied a large extent of territory, which was covered with similar tombs, some larger and some smaller. The average length and size may be inferred from the relative size of the entrance door, which was sufficient to easily admit a full-grown man. In those which I have visited one descends from twenty to forty steps below the surface of the earth, into the vault beneath, which is a room varying in size in different tombs, from ten feet square and eight feet high, to thirty feet square and ten feet in height. Many of these vaults were beautifully finished inside, and the walls were ornamented with fine frescoes, representing triumphal marches, games, dancing girls, and domestic scenes. Portions of these frescoes remain bright and beautiful to this day. Naturally, time has leveled the tombs to

dust, and for ages the ground has been cultivated above, while the vaults beneath were forgotten and undisturbed until a few years since. The present Italian government has made extensive excavations, and formed a very interesting museum from the relics there found.

It was beneath the ruins of one of these Etruscan tombs that the partial denture, which I shall designate as No. 1, was found. As will be seen by the drawing, No. 1 represents the front view of an arrangement for holding in position three superior artificial teeth, by banding them to adjoining natural teeth. In this drawing the cuspid and lateral incisors were natural teeth, while the two central incisors were evidently carved from some large animal's tooth, to fit the space. Figure No. 2 represents No. 1 in a position to show the missing artificial first bicuspid, and the adjoining natural teeth, which had crumbled to dust when this relic of human misery was unearthed. No. 3 represents a partial denture which was taken from an ancient Roman tomb, dating back four hundred years B. C. The remaining tooth in this specimen was evidently a human tooth, as, no doubt, was the missing one. It represents the early Roman method of replacing two inferior incisor teeth on the Etruscan plan. Figure No. 4 shows No. 3 reversed, giving a clear view of the position of the missing artificial tooth, with the manner of holding the same in position. The gold used in these specimens was very soft, evidently made so for the purpose of more easily slipping the rings over the natural teeth, in adjusting the piece in the mouth. The two centrals in No. 1 were well carved, and the dentures were cleverly made.

These are the earliest known essays at dental bridge-work. What conclusions are we to draw from these evidences of early dentistry? In view of the recent discovery of wonderful surgical instruments found in the ruins of Pompeii, instruments that have been re-invented in recent years to meet the demands of modern surgery, one is almost inclined to call a halt before expressing any opinion, and wait a little longer for the excavators to dig up Etruscan or Umbrian telephones, and evidences of railways and steamboats.

In Figure No. 5 is presented in outline an Etruscan skull in my possession, which was taken from one of the ancient tombs at Corneto. It is minus the inferior maxillary, but it shows clearly a

missing right superior first molar, and evidence of alveolar abscess at *a*, proving conclusively that Etruscan mortals suffered the pangs of toothache like mortals of to-day. That is one of the luxuries we have inherited with the exquisite specimens of jewelry they left us. In shape and size this skull very closely resembles the early Egyptian heads. That great Egyptologist, Ebers, has proven that they had teachers of dentistry three thousand years ago. Then they must have had a necessity for dentists. When we are able to decipher the Etruscan inscriptions, possibly we may find that these carpet-bag Etruscans went over to Egypt, and obtained Egyptian diplomas without learning the Egyptian language, and then returned and put on foreign airs. I am aware that some will possibly remind me that one or two supposed antique specimens of Etruscan or early Roman dentistry do not prove that there were dentists in Etruria, or that the early Romans had made the same professional advancement that we have. A visit to the museum at Corneto will partially dispel this illusion, and lead one to the belief that there are more things in heaven and earth than are dreamt of in our philosophy. A few months before the late lamented Dr J. Marion Sims died, he was at my home in Rome, and I related to him what I had seen at Corneto. He expressed the greatest surprise and interest in the subject, and afterwards wrote me from Paris, urging me to pursue my researches and prepare them for publication. Last winter the great English surgeon, Sir Spencer Wells, spent an hour at my house, and he also expressed great interest in the matter, and related to me the story of a dentist who practiced in Egypt, and who had seen mummy teeth that had been filled with a kind of fusible metal. The noted English archæologist and writer in Rome, Mr. Forbes, assures me that he has seen mummy teeth that had been filled with gold. A noble Roman princess has told me that she has seen Etruscan teeth that were artificially filled, and has promised to soon open the way for me to see them. Personally, I have not yet seen any evidence of such dental skill, but I do not despair of demonstrating it in the near future. From my limited observations I am not ready to declare that any of the Etruscans died of toothache, or that they had as bad teeth as we see nowadays. On the contrary, I am inclined to think they had better teeth than we have, and that in many respects they were wiser than we are. As a rule, they cremated their dead, and that

custom of theirs renders our task a very difficult and tedious one in procuring evidence.

Judging from what I have seen and read, and from what I have learned from scientific men, only great warriors and civilians of distinction were embalmed and laid at rest in the family tomb, in that part of Etruria included in my observations. Naturally, cremation would reduce to ashes the teeth of those entombed in urns, and two or three thousand years of time has accomplished the same end for nearly all those who were embalmed and laid to rest in state. This narrows our limits of research to a small point, and makes it rather surprising that any artificial dental work should come down to us from those remote days.

"Wondrous and awful are thy silent halls,
O kingdom of the past;
There lie the bygone ages in their palls,
Guarded by shadows vast.
There all is hushed and breathless,
Save when some mirage of old error falls
Earth worshiped once as deathless."

"Thy mighty clamors, wars, and world-noised deeds
Are silent now in dust;
Gone like a tremble of the huddling reeds,
Beneath some sudden gust.
Thy forms and creeds have vanished,
Tossed out to wither like unsightly weeds
From the world's garden banished."

PROLIFERATION OF EPITHELIUM IN AN ALVEOLAR ABSCESS.

BY DR. W. D. MILLER, BERLIN, GERMANY.

About three years ago I had occasion to prepare microscopic sections of a large abscess-sac from an upper bicuspid tooth, and was very much surprised, on making a microscopic examination of the sections, to find that the interior of the sac, which at the time of extraction was filled with pus, had a complete lining of epithelium. Not only did a layer of epithelial tissue, from two to eight cells thick, appear to cover the entire inner surface of the sac, but it sent sprouts into the tissue of the sac, thus forming a network of epithe-

lial tissue, the meshes of which were filled with a reticular connective tissue, infiltrated with round-cells (pus corpuscles).

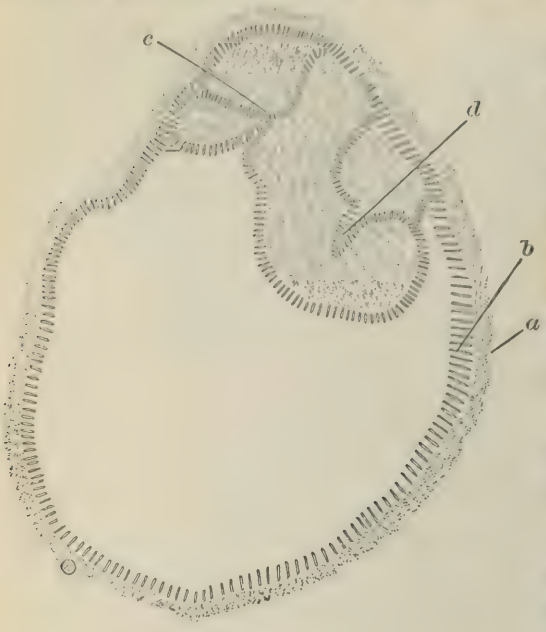


Fig. 1

In figure one is given a, in part schematic, representation of the appearance of a section under low power; *a*, the inner surface of the sac, and *b*, the lining of epithelium, which at *c* has already formed a network in the substance of the sac, and at *d* is sending a new sprout into the same.

In figure two is seen a small portion of the same under higher power.

Two interesting questions arise in connection with this case; first, how was the epithelium produced within the abscess? second, what effect could it have had upon the course of the disease?

In respect to the first of these questions, the same principle holds true for epithelial cells as for cells in general; that is, epithelial tissue can be produced only by proliferation of previously existing epithelium; it cannot, therefore, have arisen by a transformation of any of the elements ordinarily found in an alveolar abscess, but must in all probability have entered the abscess from the surface of the gum, along the track of a fistula.

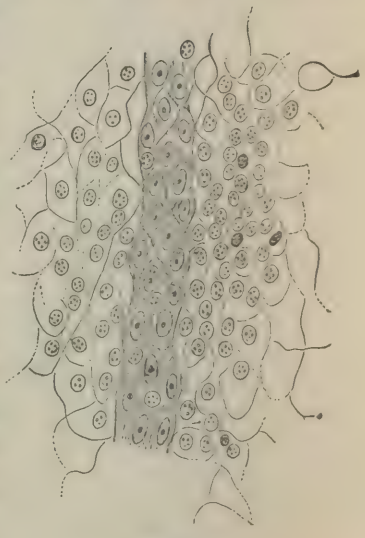


Fig. 2

Analogous cases are by no means uncommon, though I am not aware that a case of this kind has ever been reported. One of the most interesting is described by Carl Friedlænder (vid. *Ueber Epithelwucherung u. Krebs*). He found a perfect lining of epithelium in a completely closed subcutaneous abscess. In this case the examination showed

that by the suppurating process two hair follicles had been opened, and that the epithelium from the internal root membrane had gradually extended over the whole surface of the abscess. The presence of the epithelial lining, according to Friedlænder, has no effect, or if any at all, a deleterious one, upon the healing process, whether in fistulous tracks, on ulcerating or granulating surfaces, or in abscesses. The same is probably true of those perhaps rare cases where it is found in alveolar abscesses. The formation of pus takes place under the epithelial layer, just as if it were not there, and the pus corpuscles may be seen everywhere passing through the layer into the interior of the sac. We have here a case in which an atypic development of epithelium can safely be said to be without any pathological significance.

SOME POINTS IN THE APPLICATION OF HYDROCHLORATE OF COCAINE TO DENTAL SURGERY.

BY N. J. HEPBURN, M. D.,

Ophthalmic and Aural Surgeon to the Demilt Dispensary, Assistant Surgeon to the Manhattan Eye and Ear Hospital, District Physician to the New York Lying-in Asylum, Clinical Assistant at the College of Physicians and Surgeons, etc.

The main obstacle to the general adoption of the new anæsthetic has seemed to be the uncertainty in regard to the best mode of application, or the difficulty in reaching the part which the operator desires to affect. This is especially the case in dentistry, and it is in the hope of assisting to open the way for a fair trial of the alkaloid and its salts in dental surgery that I venture the following remarks.

Erythroxylon Coca and its alkaloid have been so exhaustively written up in the medical journals of this city during the past two months, that we may pass over the natural history and constitution of the plant, as well as its triumphs in ophthalmic surgery, and confine our attention to a few facts which have been obtained by actual experiment.

A four per cent. solution of cocaine hydrochlorate in water was dropped by Dr. G. W. Weld, of New York, into the cavity of a tooth whose pulp he wished to remove; in a few minutes this was extracted without pain being felt by the patient.

Having observed in several operations about the face that the anæsthesia produced by cocaine was apparently confined to the

tissues supplied by the nerve over which it had been used, it occurred to me to ascertain whether anæsthesia of a part might not be produced by application of the anæsthetic to the trunk of the nerve of sensation distributed to that part. Experiments were accordingly made, by injecting varying quantities of the solution over the supra-orbital, infra-orbital, mental, and dental nerves, in each case endeavoring to have the needle of the syringe approach as closely as possible the nerve to be acted upon. The results of these experiments only served to confirm previous impressions, and we are now enabled to state positively that the anæsthetic applied to a nerve of sensation will produce insensibility of the tissues to which that nerve is distributed, beyond the point of application. For example:

Eight drops of a four per cent. solution were injected over the supra-orbital nerve at its foramen, and in two minutes there was complete anæsthesia of that part of the forehead and scalp to which the nerve was distributed, lasting twenty minutes. A similar application was made over the infra-orbital foramen on the right side, using ten drops of the solution. In five minutes there was complete anæsthesia of the cheek of the same side, of the teeth in the right upper jaw, from the median line to the first molar, and partial anæsthesia of one side of the nose, as well as of the right ear and vicinity. The anæsthesia lasted twenty minutes, and sensation was imperfect for a much longer time. While sensation was abolished the teeth were repeatedly struck, pieces of wedge inserted between them, the gums pierced with pins and pinched with forceps, without producing discomfort on the part of the patient.

Another experiment was made on the same patient, two days later, when the syringe needle was inserted through the buccal mucous membrane, in close proximity to the entrance of the inferior dental nerve of the left side into the dental foramen. The result was anæsthesia of the lower lip, molar, canine and incisor teeth, and partial anæsthesia of the tongue on that side. It appeared possible to extract any of the teeth in that region without pain, but as the patient objected to this sacrifice in the cause of science, it was not attempted. The anæsthesia lasted just one half-hour from the time of administration.

These experiments were repeated several times, on different individuals, between the 11th and 28th of November, and with slight

variations produced substantially the results above recorded. In each case sensation was measured by the Carroll æsthiometer.

Since these observations were made, there has appeared in the *New York Medical Journal*, of December 6th, 1884, a letter from Dr. R. J. Hall, giving a very clear and complete description of experiments made by himself in the same direction, which will well repay perusal. Numerous applications have been made to aching cavities at the Demilt Dispensary, with satisfactory results.

The use of twenty to thirty drops of a four per cent. solution will often be followed by constitutional effects which, while not dangerous, are somewhat disagreeable to the patient. These are, increase in the pulse and respiration, some general anæsthesia, staggering gait, double vision, dilated pupils, dizziness, hallucinations, and one or two observers have reported nausea. These effects pass off in an hour or two.

A case is on record where five grains of cocaine were taken at one dose, without fatal effect. It is, however, advisable to use not more than one-half to three-quarters of a grain at a sitting, if it is desired to avoid the unpleasant sensations referred to above, and less than one-half grain will produce sufficient anæsthesia for short operations.

Since the above was written, a case has been brought to my notice of the painless extraction of an incisor under cocaine, but the particulars have not been furnished, so that the account is not complete.

A fact worth bearing in mind in this connection is that the use of cocaine diminishes congestion, blanches the part, and to some extent lessens hemorrhage.

CROWN WORK.

BY DR. A. M. ROSS, CHICOPEE, MASS.

In dental mechanics there is no subject that has received greater attention during the past few years than that of tooth crowning. It is a subject worthy of careful investigation, and if this is carried out the defects of the several most popular methods will be readily discovered, at the cost of the investigator occasionally. Each method possesses peculiar advantages, and each case that is presented for treatment presents peculiar needs. So it must be con-

ceded that any one plan of treatment will not have a general application. A Richmond crown has many advantages, and when the porcelain is faced with metal upon its cutting or masticating surface, it is no doubt the strongest porcelain crown work made, but its disadvantages are not a few. There are many conditions (physiological as well as pathological) which prevent its successful application to some roots. In case of fracture an entirely new piece of work is necessary, and the force necessary to split and remove the cap and pivot is often prejudicial to the future welfare of the root, and the expense of this work is beyond the resources of the ordinary pocket-book.

Where it has been found best to mount Bonwill crowns, I have, in the past year, adopted a method which came so natural that I cannot believe it original, and yet I have seen no hint of another's use of it. I proceed as if it were to be a How four-pin crown, up to the point of cutting off the extra length of screw post. This is cut shorter or left longer, according to the articulation after the crown is ready to set. The alignment of the crown is accomplished before grinding it; then a piece of Field & Mer's thin articulating paper, a little larger than the face of the root, is perforated in the center and slipped over the screw. This serves as a guide in correctly jointing the crown with the root. The crown is then set with amalgam. An improvement upon this method is to band the root very perfectly with coin gold, half the width of the band projecting beyond the face of the root. The cervical portion of the porcelain crown is then fitted inside the band and properly articulated. The rubber-dam is then easily adjusted, the crown is removed, and the face of the root dried. The latter is flooded with carbolic acid for a moment, and thoroughly dried. The crown is set in a well mixed, thick oxy-chloride cement. When this is hard the excess is trimmed off, an angular pit is drilled into the end of the screw in which gold is carefully packed and extended upon the crown. Now in case of fracture of the porcelain, which will sometimes occur, neither post nor band has to be disturbed in the process of setting a new crown. As matters of convenience, comfort and expense, this is of great advantage to both patient and operator.

The swaged gold thimble-caps, made by Dr. E. O. Wilbur, for bicuspids and molars, are the finest of their kind, and in cases where a large mass of gold will not be a disfigurement to the patient, noth-

ing more serviceable can be adjusted to articulate upon. After the root has been prepared internally, the external flange is carefully removed and the outside of the root slightly beveled, and an impression and bite is taken with modeling compound. The model is made of oxy-chloride of zinc, and for the purpose is as good as one of Babbitt, or other metal. Plaster is built upon and around this to represent surrounding teeth taken in the impression. This saves time and annoyance to the patient. A crown is selected, which in size at the neck is smaller than the circumference of the root. The model is slightly trimmed, then with the aid of a light planishing hammer the edge of the crown is drawn out on the arm of the anvil, and with file and engine bur the shaping to the root and the cutting away for the festoons is carefully and accurately done. Trial will prove a tight fit. A How screw-post, of suitable size is now inserted, with repeated trials of the crown over it, and slight nippings from the end of the screw until the crown in its proper position rests on the end of the screw as well as upon the beveled edge of the root. A fine vent hole is then circled over the screw in the crown. The crown is filled with oxy-phosphate and is firmly pressed to position. At a subsequent sitting the cement over the screw is removed, a pit is drilled into the screw and heavy gold is packed into it. These caps being swaged up from a solid piece, the plate is drawn the most over the more prominent points of the die—the cusps—and it is a good plan to drop a little silver solder inside the cap over these thinnest portions before setting them. It would be well if a still larger screw than the largest How screw post should be furnished the profession for the special purpose of setting these caps. They would give still more solidity to the crowns and furnish a larger surface on the ends in which to anchor and weld gold.

A recent case in practice has some points of interest. It is that of a superior central incisor root from which the crown was accidentally broken. Three years ago a wood pivot crown was placed upon the root by another dentist. Six months afterward I found it necessary to substitute a Bonwill crown, using a triangular platinum wire pivot. The root, which was found healthy, had never been sealed at the apex; it was properly treated and sealed before setting the crown. Amalgam as a cement was used. The patient is a vigorous young man of twenty-five, who uses his teeth as he ought to, at least so far as mastication is concerned. The articula-

tion of his teeth is perfect, being very close in front, so close, in fact, that in articulating the crown I found it necessary to grind the palatal surface considerably from the crown after I had burred from the corresponding portion of the root all that was proper. At all events the crown proved weak, and it split off from the pivot about six weeks since. In casting about for the *very best* I could do for my patient I decided upon a Richmond crown. My plan differed from the usual method. It being an unusual case, it called for extraordinary treatment. Through the remains of platinum pivot and amalgam, which was found in excellent condition, the root was drilled and tapped as if a How screw post was to be inserted. After the root was banded and capped with gold, a gold screw two-thirds the diameter of opening in the root was selected; this was wrapped carefully with bibulous paper to the thickness that allowed its easy passage into the root. The end that projected was inked, the cap applied, marked, removed, drilled and readjusted to the root; the screw just passing through the cap was waxed to place, the porcelain crown was ground to band and cap, waxed and the whole carefully removed, invested in plaster and asbestos and soldered.

Herein lies the difference of this from the usual method: the band projects both above and below the cap. The portion in front is cut away in such manner that the crown passes a little inside of it, making a better joint; the soldering is simply of the backing to pins, to the center of the cap, and to the band at *each side.* A few hours after the crown had been set (the threads of the tapped root and screw being well covered) with oxy-phosphate, which had fully hardened, the cap and root back of the crown were drilled, the opening in the root slightly dove-tailed and carefully filled with amalgam, with which the palatal contour was restored, and upon which there was a perfect articulation, the projecting band forming an excellent cup-shaped receptacle for the amalgam.

I cannot conceive of a piece of crown work better calculated to withstand the force of vigorous mastication, and still remain firm.

ADAPTING ARTIFICIAL DENTURES.

BY DR. C. H. LAND, DETROIT, MICH.

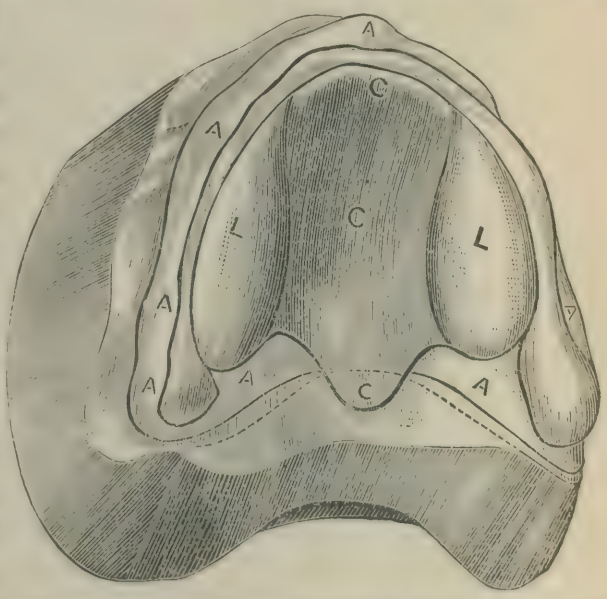
In the fitting of artificial teeth to the various conditions of the mouth, there seems to be much confusion. Every man has a way

of his own, and will take pride in telling you of the remarkable degree of success he has attained in certain difficult cases; how all his fellow-practitioners have failed, and how he in some profound and mysterious way succeeded. Then there is the individual who will bore you with an hour's lecture on how to take a wax impression. If you show him some slight improvement, he will claim priority of invention by twenty years. He always makes a fit, never fails, and his patients can with perfect ease eat green corn off the cob. Then we have the plaster impression man, the modelling compound man, the air chamber man, the suction plate man, the no air chamber man, and the man who talks about the cohesion of the plate. In the preparing of metallic dies one man will claim that zinc is the best; another declares it not proper for the purpose, and that Babbitt's metal is the only thing fit to use, and these men, with all their apparent wisdom, will hesitate about coating a plastic impression with sandarach varnish $\frac{1}{1000}$ of an inch in thickness, for fear of spoiling the adaptation.

However, a careful investigation will show that about the same results can be obtained from several directions, proving the fault to be with the men, and not in the material. In order to comprehend the principles involved we must progress scientifically, search out the real facts, and see if every part can be measured mathematically. When this is done ultimate truths will be revealed, and the fitting of artificial dentures will be made easy. No one can reach the maximum of success unless he becomes thoroughly familiar with every condition of the mouth. There is the rigid, the soft, the large, the flat, the angular, and the dry, or it may be three of these conditions in one. Each will represent a different degree of contact and retaining force, according to the size and different angles, and whether they are moist or dry, hard or soft. A small, dry, flat and rigid mouth cannot be made to support much more than the actual weight of the denture, and will represent the minimum retaining force; say about two ounces. On the contrary, a large, soft and moist mouth will conveniently support several pounds. In preparing a denture so as to secure the most perfect adaptation, capillary attraction is the force to be relied on, and every effort that will have a tendency to augment or increase it will be in the right direction. It causes the denture to adhere with a force of about two pounds to the square inch. On the contrary, with an air space

and the exhausting power of the tongue, the retaining force is reduced to about two ounces to the square inch, which would be one ounce for the usual small air-chamber. From this it will be seen that capillary attraction represents a retaining force thirty times greater. In order to secure the best results, four-fifths of the central portion of the denture must be converted into a partial vacuum, about the sixtieth part of an inch in depth, as a temporary means of establishing an adaptation by capillary force. Experience has demonstrated that, eventually, all air spaces become filled with the tissues, proving that a permanent partial vacuum cannot be maintained; and yet, if it were possible, the utility would be of less importance than capillary attraction. When four-fifths of the lingual surface is relieved, the denture is prevented from coming in contact with the central portion of the dental arch, causing the outer margin to become adapted to the alveolar ridge first. This prevents the plate from rocking or riding on the rigid portion of the palatine arch, and eventually secures the maximum contact over the entire surface. The mouth, being of a yielding nature, soon conforms to this relief, producing a balanced contact, and a denture that is maintained entirely by capillary attraction. If the exhausting power of the tongue were strong enough, and the tissues of the mouth would tolerate an atmospheric pressure of only one pound to the square inch, no better means could be devised for maintaining artificial teeth in position. It differs from capillary attraction by offering a resistance in every direction, while the latter, when pushed sideways, slips or slides, the intermediate fluid causing the two surfaces to roll or slide past each other. This will account for the great difficulty in fitting angular mouths. A narrow and high arch presents so little horizontal surface as to reduce the retaining force to its minimum. Capillary attraction is greatest when the exertion is in a direct angle from a horizontal surface, and in order to obtain the best results in fitting angular mouths we must resort to friction by trimming all the perpendicular angles of the cast, thus forcing the mouth into a smaller space than the impression represented. In applying these directions to the various shaped mouths, they will bear a considerable modification. A mouth that is flat and rigid needs the least possible change made in the denture. A very slight relief, gradually increasing toward the center, will bring about the best results, and in this case the

man who is guided simply by a good impression is almost as successful as the one who makes the relief. On the contrary, a mouth in which the alveolar ridge is soft and the central portion of the dental arch very rigid, unless considerable relief be made, the denture will find its first contact on the palatine surface, and close adaptation will be destroyed. By relieving four-fifths of the central portion, first contact is thrown to the outside, and maximum adaptation is secured. Any rigid portion of the mouth coming in direct contact with a rigid denture will destroy a perfect adaptation. These parts are usually found in the central portion of the palatine surface, and the dense parts of the maxillary bone, and unless some relief is given the denture will rock or ride, either forward backward, or sideways. By reference to the following illustrations it will be seen that L L C C C mark the position of a lead or tin matrix to form a proper relief that will be effective in all cases where the alveolar ridge is soft and spongy, and the central portion of the palatine surface rigid as far back as the soft palate. The lobes, L L, are designed to give additional relief to the dense parts of the maxillary bone, and are about the thirty-second part of an inch in thickness, with edges beveled so as to avoid any acute angles. The central portion, C C C, is about the sixtieth part of an inch thick. The dotted lines indicate the extent of the denture, showing that when completed there will be a space or opening at C. This serves as a complete relief, and permits the air to pass between the denture and the mouth. In order to get an immediate suction it will be necessary to insert a moist piece of cotton at this particular point, until the mouth so conforms to the denture as to close the space, and this will take place in from three to four days. The letters A A A A A indicate the parts of the mouth that, when soft and spongy, will bear increased pressure, and this



is brought about by trimming the plaster cast just in proportion to the conditions found in each case. If rigid, no trimming will be tolerated.

Finally, in the construction of artificial dentures, the first step is a correct impression; second, a proper diagnosis of the conditions presented in each case; third, a proper trimming of the plaster cast for relief. Then keeping in view the fact that the mouth will readily conform to the denture, and that capillary attraction is of far more value than atmospheric pressure, it is possible to reach the utmost degree of success.

"THE NEW ANÆSTHETIC."

BY JULIEN W. RUSSELL, M. D. S., BROOKLYN, N. Y.

The discovery that Hydrochlorate of Cocaine when applied to sensitive surfaces has the power of producing complete insensibility to pain has certainly excited more comment than even that of chloroform. Though only discovered a few months ago, by a German medical student, it is now in the hands of almost all the medical fraternity, who are experimenting with it, so far with the most satisfactory results. The first discovery of its effects was upon the eye, but since then it has been found to give the same results when applied to any of the mucous tissues; even when injected into the ear it will produce anæsthesia; applied to wounds, it not only relieves the pain, but does not interfere with union by first intention; in fact, it rather hastens it than otherwise. It has also been used to modify the pains of childbirth. Applied to any portion of the mucous tissue of the mouth, it shows its anæsthetic effects as fully as when applied upon the conjuctiva of the eye. By its use abscesses can be opened, and live pulps removed from the teeth with very little pain. There is a case reported in the *Medical Record* of a small tumor on the forehead which, having been first injected with the drug, was removed without causing any pain to the patient.

The formula of Hydrochlorate of Cocaine is $C_{17}\ H_{21}\ NO_4\ HCl$. Its physiological effect, when given in large doses, is to produce tetanic convulsions, and in smaller ones, hyperæsthesia, dilation of

the pupils, diminution of movement, etc. Its effects are similar to those of the alkaloids of tea, coffee, guarana and cocoa.

Dr. D. C. Cocks, Assistant Surgeon N. Y. Eye and Ear Infirmary, has just sent me a report of three cases in which he has used it. In the first two he applied the two per cent. solution to the soft palate and the walls of the pharynx. The patients had a tendency to nausea whenever a laryngoscopic mirror was introduced. Fifteen minutes after the first application the larynx was examined with the mirror without the slightest trouble. The third case was a tonsillar abscess. He painted the anterior pillar of the fauces with a four per cent. solution, and then opened the abscess, the patient complaining of very little pain.

It is very common to find patients who are so sensitive that it is almost an impossibility to either take an impression or introduce a napkin, on account of the induced nausea. In such cases cocaine, when applied in the above manner, will entirely cure this tendency, so that any operation can readily be performed. An abscess can be treated in the same way before it is opened. Apply the four per cent. solution to the place where it is about to point, the part being protected from the saliva. Five minutes after, wipe off the solution and apply some more. Leave this on for from five to ten minutes, when the incision can be made to at least four or five lines in depth.

It is in removing live pulps from the teeth that this drug plainest shows its power. Expose the pulp by removing the decay, and puncture it so that it will bleed slightly. Apply the rubber dam and dry out the cavity. After the bleeding has ceased, place a drop of the cocaine on the pulp, and repeat it every five minutes for from fifteen to twenty minutes. Upon the tissue being completely anæsthetized it can be removed in the usual manner.

Sensitive teeth that have hitherto resisted the action of all the obtunding agents in the materia medica will, in some instances at least, yield to this agent when applied in the same manner.

I do not believe that it will be of much benefit in extracting teeth, as its action will hardly penetrate through such dense tissue; but in the first stages of acute periostitis there is no doubt that, when the pain is very severe, its application at short intervals to the gum above the affected tooth will considerably allay the pain. The two per cent. solution is not strong enough to use in the mouth

where the tissues are less sensitive than the eye, so it is better to use the four per cent. solution. The present cost of cocaine will for a while prevent its general adoption, but in time this will be remedied. The retail price for the four per cent. solution is about two dollars a drachm.

REPAIRING VULCANITE WORK.

BY DR. S. B. PALMER, SYRACUSE, N. Y.

Scarcely any two workmen conduct the operation of repairing broken or cracked dentures alike. This is of little consequence, provided the work be well done, except, perhaps, in the appearance and saving of time. It is not my intention to instruct those whose experience and practice in that line far exceeds my own, nor to consume time in giving methods of flasking, finishing etc.

We often see cases greatly disfigured by under-cuts, dovetails, and other devices, which were intended to secure union between the old and new material, a process as unnecessary as it would be in the use of glue in cabinet work. This is no theory, but a fact well substantiated by a trial of seventeen years. Observe the conditions, which are few and simple, and it will be seen that separation of the parts on the line of contact is impossible. There may be a score of methods that will accomplish the same object. The following certainly will:

Prepare the surfaces with file, bur, or scraper, as most convenient. Bevel to a thin edge if possible. When the parts are ready to receive the wax for building up, paint the surfaces with a solution of chloroform and such rubber as the case is made of, red or black. This coating should be thin, so that it may only show a gloss when dry; not a covering of rubber, as would be the case were it thick as cream. Under no circumstances attempt to fill thin spaces or out-of-the-way places with rubber softened by a solvent. Such preparations are brittle and porous. After the surfaces have been once varnished, wax or oil does not injure or prevent union when boiling water is used to remove the same. Portions like the rim and clasps may be supplied with strips of rubber instead of wax, covering them with plaster before flasking. By leaving space in packing for the rubber to reach that which is imbedded, there will always be perfect union; an effectual method

of removing wax consists in boiling the case in water ; a pint basin of water heated over a lamp is sufficient. By the use of a four ounce metal syringe, every particle of wax may be driven out and made to float upon the surface of the water. A piece of paper drawn over the water takes up the wax, and the case comes out clean, and with a surface well prepared to receive the rubber used in packing. Other methods may answer equally well, but the above will give positive success.

A CASE IN PRACTICE.

PRESENTED BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AUGUST 28, 1884.

BY W. D. MILLER, BERLIN.

The following case may serve to demonstrate the pathogenic nature of certain micro-organisms which are occasionally, to say the least, to be met with in the human mouth, and the consequent possibility of the infection of either patient or operator through wounds incurred during the performance of dental operations.

Frau X., somewhat anæmic, otherwise in good health, called upon me some weeks ago, complaining about often having a taste of old Limburgh cheese in her mouth. I immediately examined the dental arch without finding a trace of suppuration anywhere, and but very slight decay. Turning my attention to the throat, I at once discovered the cause of the complaint, the very much enlarged tonsils being almost concealed by a thick, yellowish-white coating, which was found to consist of masses of many different fungi, cocci and diplococci predominating, some of the latter appearing to be surrounded by a delicate gelatinous sheath. The coating upon the surface of the glands was removed without much difficulty, partly mechanically, partly by means of antiseptic washes. It was found, however, that the fungi had penetrated the fissures between the folds of the tonsils in some places to the depth of one-fourth, or one-half an inch, where they were entirely secure against the action of the most powerful antiseptics superficially applied.

After a great many unsuccessful attempts, by myself as well as by the family physician of the patient, I accomplished a partial success by dipping a delicately curved probe into a ninety per cent.

solution of carbolic acid, and then working it between the folds of the glands wherever nests of fungi had been established.

A complete eradication has, however, up to the present day, not been accomplished.

When this case was first observed, a small quantity of the saliva was brought into about fifty c. c. of sterilized calves' broth, and allowed to stand for four or five hours at thirty-seven degrees C. At the end of this time one c. c. of the solution was injected into the lung of a full grown rabbit. Death occurred in thirty hours, the blood of the animal being densely crowded with cocci and diplococci, surrounded for the most part by a wide sheath, best seen when stained with a solution of gentian-violet in aniline water.



The subjoined cut will give an idea of the appearance of this fungi under the microscope.

ROUGH ENAMEL.

BY C. E. FRANCIS, D. D. S.

A prevalent notion seems to have been long in existence that the enamel of a tooth should never be molested in any manner, and if but barely touched with either a mechanical or chemical agent its integrity is virtually destroyed.

So strongly has this idea forced its way into the mind of mankind generally, that many persons would rather risk the loss of all their masticators in the natural order of things than have their teeth cared for by a dentist. Indeed, not a few individuals refrain from the use of dentifrices, and even the tooth-brush, fearing their teeth will be ruined thereby. Not infrequently during the process of preparing a cavity for filling, or in removing stains or salivary calculus, the dentist is asked if he is not destroying the enamel of the teeth upon which he is operating, and often a word of caution or protest is uttered by the patient. Sometimes the dentist is seriously annoyed at the lack of confidence thus manifested, and at times feels somewhat hampered in his efforts to benefit those who so question the soundness of his judgment.

It is, however, refreshing to meet, as is occasionally the case, with patients sensible enough to repose trust in those whose services they seek.

It may be well to cite one or two cases of practice which will serve as a reply to the question asked by "G. B." in the August number of the INDEPENDENT PRACTITIONER, page 474.

About eighteen years ago a gentleman brought his son, a lad of twelve years, who possessed a set of teeth about as ill-looking as it is possible to imagine. The entire surface of enamel was but a tissue of serrations and pits, and, coated as they were by dark-colored accumulations, he presented a most repulsive appearance. Said the father: "They are the worst looking teeth I ever beheld, and it pains me to look at them. Can anything be done to improve them, or must they be extracted?" After due examination the following advice was imparted: "If the lad was my son I would plane down the surfaces of his teeth and polish as smoothly as possible." "Very well," was the rejoinder; "do for him as if he was your child." So with broad, sharp chisels and files, the rough surfaces were cut away, and with sticks of Superior-stone and powdered pumice were polished quite smoothly. A few pits, here and there, penetrated the dentine, and were carefully filled with gold.

The result proved a complete success, and from that time they have remained whole and clean.

Another case was that of a youth of fifteen summers, with superior incisors much eroded, their entire labial surfaces roughened by acidulated secretions. The teeth were somewhat stained and a little sensitive. The surfaces were smoothed with fine corundum wheels, and polished with corrugated rubber disks charged with finely-ground Arkansas-stone. For three years they have kept splendidly, are bright and clean, and present a far better luster than in their original or normal condition.

With the above, and many other similar experiences as a guide, I would not hesitate to cut away and polish rough enamel.

COMBINATION OF THE NAPKIN AND THE RUBBER DAM.

BY B. M. WILKESON, D. D. S., M. D., BALTIMORE, MD.

For filling the superior teeth, when it is not desirable to use the rubber dam in the usual way, but it is important to keep the napkin dry, I find it an admirable plan to place the napkin upon a sheet of rubber dam, with the latter projecting about half an inch beyond the edge

of the former. I then pass each under the teeth to be filled, and hold them in the same manner as when the napkin alone is used. In this way the napkin will be kept thoroughly dry, which will enable the dentist to perform his operations with great satisfaction.

A little experience in the use of this combination will prove particularly valuable to those who use soft gold and amalgam, as well as all other filling materials. The advantages which I have derived in this method are: It saves much valuable time that would otherwise be spent in adjusting the dam in the usual manner; it protects the napkin from moisture, which would be absorbed from the secretions in the lower part of the mouth; the napkin throws more light into the cavities to be filled than would the dam alone, and the gold is not so liable to drag on the linen as on the rubber; the two are more readily held in position than would the rubber alone.

This combination may not be new to all, nevertheless I have never heard of any other operator using it; therefore, as far as I know, it is original with me, and I publish the discovery, not as a revolution, but in order that others may reap the benefit.

THE NEW LOCAL ANÆSTHETIC.

BY G. L. CURTISS, D. D. S., SYRACUSE, N. Y.

In the last number of the INDEPENDENT PRACTITIONER reference is made to the experiments upon sensitive dentine of Dr. Julian W. Russell, with the new local anæsthetic, Hydrochlorate or Muriate of Cocaine. (Muriatic is but another name for Hydrochloric acid.)

I, too, have been using the drug since its first appearance in this country, and with very satisfactory results, insensibility of tissue usually taking place in from three to five minutes, and lasting from ten to fifteen. I have observed that the best results are seen in soft teeth, of a loose structure. My experiments have been confined to the use of the drug as an obtunder of sensitive dentine, and I find that excavation can, under its influence, be accomplished with little or no pain to the patient. I have also used it upon the gums before lancing or scarifying. I had prepared a more elaborate report of my experience, but I presume the points will be covered by the paper of Dr. Russell.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FOURTH ANNUAL MEETING, AT SARATOGA.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY PROF. CHAS. MAYR.

(Concluded from page 699, Vol. V.)

The consideration of the report of Section VII, Physiology and Etiology, was declared in order.

Dr. Pierce—Has watched the development of the various theories regarding dental caries, and especially the experiments of Dr. Miller. He does not think that Dr. Barrett comprehends the position that Dr. Miller occupies. He proceeded to read extracts from the papers of the latter, in which he speaks of outside influences, and the existence of hidden causes aside from those of a bacterian origin. He thought these causes were antecedent to absolute decay, and that Dr. Miller would imply that the diseased condition existed first, and that bacteria, finding here a field prepared for their growth, multiplied, not as the cause, but as the consequence of impaired function and nutrition. An impairment of the vital forces is the first step; the diseased condition being established, bacteria find then the proper environments for their growth.

Dr. Barrett—No one more than myself regrets the absence of Dr. Miller, or my own inability to properly and intelligently present his views. No one who has not himself gone through a series of experiments and original observations sufficient to enable him to thoroughly comprehend the matter, is competent to speak knowingly on this subject. He may give an opinion, but his facts are all derived from some one else; everything except his mere theoretical speculation is second-hand; he is liable to quite misapprehend the whole matter, because of the necessity for looking through the eyes of another. No one who is not an original observer possesses the right to express himself positively. For these reasons I am exceedingly chary of making a definite statement; but I think I am quite warranted in asserting that Dr. Pierce could

not be wider of the mark in his apprehension of what Dr. Miller teaches. He seems to be under the impression that the latter regards micro-organisms as only incidental to caries. Dr. Miller asserts directly the contrary, and it would seem that any one who reads his paper as intelligently as Dr. Pierce must necessarily do, could come to no other conclusion than that his observations and experiments indisputably establish that the fungi have an active influence in directly promoting decay. He says, indeed, that there are doubtless other factors, some of which he has determined, and these he proposes to investigate. The limits of research have not yet been reached; there are yet higher hills to climb before we shall be able to see the end. But the theory propounded by certain microscopists that micro-organisms are simply the scavengers of filth, the destroyers of effete matter, is not the theory of Dr. Miller, nor do I think he would, for a moment, assent to such an interpretation of that which he has written and said.

Dr. Daboll—Those who labor under the impression that Dr. Miller does not give due credit to all who have made any original investigations are much mistaken. To Magitot, to Underwood and Milles, and to all who have studied the subject for themselves, Dr. Miller gives all attention, even while differing from them. But those who, on the strength of mere theoretical speculation, misinterpret the work of observers, and endeavor to wrest demonstrated facts to the support of a preconceived hypothesis, he does not deem worthy a serious answer.

Dr. Atkinson—I am justified in saying that we have a ghost; an unseen current of nutrient activity is the first stage of the movement which assists in bringing about the process of decay.

Dr. Searle—I have read Dr. Miller's essays critically, and understand him to say that there exists a chemical union between the lime-salts and the basis substance of the dentine. This union is brought about by vital forces, and in certain cases of ill health these forces break it down.

Dr. F. Y. Clark—I think that the bacteria produce caries of teeth by the absorption of the bioplasson, or living substance in the meshwork of the teeth. I suppose there are life-cells and death cells—we may call the bacteria death-cells—and that there is a continuous fight between the two sets of cells. Tyndall says there are classes of organisms which live directly upon the living tissue, and the same

organisms, when the tissue is inflamed, feed upon the products of the inflammation ; I do not see how Dr. Miller has produced that condition in any of his experiments.

After considerable desultory discussion, the subject was finally passed.

SECTION I ARTIFICIAL DENTISTRY, CHEMISTRY AND METALLURGY.

Dr. William H. Trueman, chairman, presented the report of the Section. The paper was very comprehensive, but the reporter was unable to follow it sufficiently to present a faithful abstract.

Dr. John Allen read a paper upon Prosthetic Dentistry. In the construction of artificial dentures, he said, we should carefully study the various requirements of different patients, for no two cases are alike; we wish to reproduce organs which nature, with all her skill, has made; the height of art will be to conceal it. This, together with their practical utility, should be the great point to attain, and this requires skill and the perfection of artistic manipulation, together with thorough mental training and scientific research. Hence the impropriety of calling this branch of our profession mechanical dentistry.

According to the best lexicographers, a mechanic is one who pursues a mechanical trade according to definite rules, and the product of whose skill reaches the same result in all cases. But a skillful dentist avoids this mechanical sameness; he has never two cases which require the same procedure; consequently this branch of his professional duty pertains to the artist whose power of perception enables him to see what is necessary to meet the various exigencies involved in his operations.

To accomplish perfect results he must know the nature and properties of the various metals and minerals used in dental practice, together with the art of converting them into artificial dentures. Especially is this the case if he does continuous gum, or block work. Many dentists do not possess these qualifications. We come much nearer the acme of our ambition in continuous gum-work than by any other of the various bases.

Dr. Robinson—This section has a very wide range, and is particularly fitted, according to the law of evolution, to survive. I take the words of Pope for my motto :

> " Be not the first by whom the new is tried,
> Nor yet the last to throw the old aside."

For forty-eight years I have labored in the profession. It is proper to inquire what qualifications are requisite for the performance of the several duties of a dentist. Simple mechanical proficiency does not constitute a good dentist; there is poetry and art in the appearance of the work, and science in the adaptation and articulation. These combined, constitute the philosophy of the dentist.

Natural teeth are never oblong or round. All teeth have a peculiar shape; to give to artificial dentures a natural appearance, they must conform to natural forms. The true artist finds a perennial glory in his labor and imagination, for labor is only the visible form of imagination; anything short of it never fills the whole mind, but only a superficial part. The real artist is never satisfied with what he does occasionally from good impulses. Without the scientific principle, all labor bestowed upon teeth is only elaborate nonsense, for they never satisfy the users.

We find in natural physiognomy teeth which do not agree with the face, but that is only when nature has been obstructed. It is seldom that good and perfect teeth, however plain, can be made better, without destroying the character of the face.

It is the combination of artist and mechanic that makes a good dentist. One of the essential qualifications for a dentist is to be able to make his own instruments, and to do his own work. Even with the variety of instruments in the market, they are so easily broken that we cannot get along without being able to do our own repairing, and hence the mechanical dentist should be a thorough mechanic.

A great charm of men and professions lies in moral rectitude. This higher perception is growing in the profession, as the profession is growing in the community. It will no longer be necessary to extract the teeth of a child, if the parents can be induced to bring the child early; with a disk we can easily polish away the first decay.

Most of the pain in excavating can be prevented if equal parts of caustic potash and carbolic acid be applied to the cavity before cutting. The carbolic acid coagulates the albumen in the tubuli, and both are antiseptics, and harmless to the bone tissue. If the pulp is exposed, the sloughing is instantly removed. The bacterian theory must now be considered as an accepted fact, and the antiseptic treatment presupposes the putrefactive process of disease.

When the chlorine contained in the buccal fluids comes in contact with tin, it is set free and forms chloride of tin, which is antiseptic ; thus tin becomes the best material for preservation. Amalgam fillings are failures when the cavity is below the margin of the gums. They are neither antiseptic nor escharotic. There is something as much beyond microscopic examination and chemical experiment as being is beyond existence, and as spirit is beyond matter. Tin is difficult to pack into a cavity, and the best form for it is that of fine fibers. For delicate margins it is the best possible material; when combined with platinum, it is more ductile and harder; when combined with a little gold, it becomes harder still. The true artist is never selfish; he is serving his calling in restoring and recovering what is lost, and that is the reason why many of our best operators are so poor.

The subject was passed and Section II was called.

DENTAL EDUCATION.

The Chairman, Dr. C. N. Pierce, read the report, which closed by the presentation of resolutions providing that all students of dental colleges should attend at least two full courses of lectures in different years; that a proper preliminary examination should be demanded; that a proper graduating examination should be required. The report expressed gratification at the recent results obtained by the meeting of the faculties of the dental colleges. Of the three hundred and sixty-five students graduated in the last five months from the twelve principal schools, five per cent, or eighteen, will, by the end of the first year, have dropped out from the profession. At the end of the second year as many more will have sought other occupations; not more than fifteen will be actually interested in the profession at the end of the fifth year.

Dr. Spaulding—Is gratified with the results obtained. He only objects to that clause in the agreement of the schools that admits men holding medical degrees to become authorized practitioners in dentistry, by attendance upon but one course. A man who is only a graduate in medicine is not as well fitted, not as competent to become a skillful dentist in one course, as the man who is a good chemist and skillful mechanic. We have catered too much to the medical profession.

Dr. Hunt—Expressed gratification that so long a step has been made toward harmonious action by the colleges.

Dr. Friedrichs—Disagrees with the view that graduates of medicine ought not to be granted special privileges. When a man graduates an M. D., he has the right by that authority to practice, if he feels like it, and the action of the college faculties is wise. It is well to offer inducements for thorough education.

Dr. Allport—Thanked the section for the report, more especially for that particular part referring to practitioners in medicine. It has long been a favorite theory with him that a practitioner in dental surgery should be a specialist in medicine, and that for the treatment of any organ of the body his knowledge should be founded on general medicine. He would like to demand the degree of M. D. for all dentists, not for the sake of the degree itself, but for the education involved in it. He does not like to have dentistry called a profession, for it is properly a specialty of the medical profession. Only as far as it is medical it is a profession ; take that from it, and it becomes merely mechanical.

Dr. Spaulding—Let us first educate our students in dentistry, and lay a scientific foundation for practical dentistry, and then, if they choose to adorn themselves with the medical degree, so much the better.

Dr. Allport—We have no text-books, even for the foundation of our profession. (Dr. Atkinson: Thank God!) We must go for them to the medical profession.

Dr. Abbott—Thinks it plain, from what has been said, that all mean about the same thing. General anatomy is the foundation of both sciences, and the same is the case with general physiology. The questions treated in physiology are not medical, but scientific. No man can get any too much education; so the more we demand, the more we ask of young men, the better for them when they have grown up.

Dr. Rhein—If the works on anatomy, physiology, and chemistry are not medical, what then are medical works?

Dr. Atkinson—Every example of a medically educated man who claims to be a better dentist is a subterfuge and falsity. I was educated a medical man, and had to cut loose from it before I considered myself fit to be a healer, and thus with all who are not educated in hospitals. A mere matter of lectures does not make

men fit to be healers. Let us not fool away time and glorify the old embryonic position. I am thankful that we have no text-books; surgery is ahead of medicine everywhere. Look at medicine, which has high dilutions and low dilutions, allopaths, homœopaths, and nopaths. Through what would a man have to go? First, classical education, then medical education, then a matriculation in a dental college. But before that I say he must be well versed in the use of his fingers. Some of the greatest fools are the most respected in society, and the most assuming are the least educated. If there is a man who is exclusive, it is the ignoramus who thinks he knows all. Many of these men have false degrees, ornaments of sin. I want no such ornament.

The subject was passed, and the society adjourned.

DENTAL LITERATURE AND NOMENCLATURE.

Upon the opening of the evening session of Thursday, Section III was called. The report (which was incomplete, but will be presented in full in the official proceedings) was read by the Chairman, Dr. J. Taft. He reviewed the third edition of Prof. Garretson's system of Oral Surgery, and raised a warning against the severe strictures of amateur critics.

Prof. Mayr—Presented a few facts about foreign journals. He asserted that Austria, with its forty millions of inhabitants, has no dental journal. In Spain a journal is issued with the "approval of the bishop." The French dental journals are not up to the standing of the nation in other respects.

OPERATIVE DENTISTRY.

Section IV was called. The report was read by Dr. E. T. Darby, Chairman, who presented four subjects for discussion. The Herbst method of packing gold by revolving burs; the electric incandescent light, its uses in dental practice; the combination of gold and some baser metal; the danger of excessive dryness during long operations while employing the rubber dam, thereby causing shrinkage of the tooth substance, and subsequent expansion, thus causing the filling to leak.

The discussion was mainly upon the Herbst method of packing gold. Drs. Abbott, Hunt, and Daboll gave their experiences, which were limited, and mostly from reports.

Dr. Watkins—Had a tooth filled in his own mouth by that method, the operator using agate burnishers, made at the suggestion of Dr. Wheeler, of Albany.

Dr. McKellops—Had procured a set of instruments, but had not been able to produce satisfactory results.

Dr. Barrett—Had a limited experience. He described the Wolrab gold, which is very soft. The instruments are not polished, only smoothed, and the gold is used in the form of cylinders. Dr. Herbst keeps a piece of block tin on his operating table, upon which he rubs his instruments, and thus keeps them free from adhering gold.

Dr. Hunt—Had inserted fillings by the rotary process, using Williams' cylinders with fair success. If the burnisher be continuously pressed upon the gold, an uncomfortable degree of heat is evolved by the friction. The pressure should be interrupted.

Dr. Rhein—Thought that the coherence of the soft cylinders was brought about by the heat produced by friction, which annealed the gold.

Dr. Daboll—Said that it was absurd to suppose that an annealing heat could be produced in the cavity without torturing the patient beyond forbearance.

Dr. Barrett—Said that in some as yet unexplained manner, exceedingly soft gold that under the impact of the mallet could not be worked into a coherent mass, was, by the rotary process, made so solid and homogeneous that it could readily be beaten or rolled out into plate. The preparations of gold that could be readily used in the usual manner were unfit for fillings inserted by the Herbst method. There was something radically different in the method and manner of consolidation.

The morning session of Friday was mainly occupied by the election of officers and the selection of a place for the next meeting. After a number of ballots, Minneapolis was finally chosen.

The election for officers resulted as follows :

President—Dr. J. N. Crouse.

First Vice-President—Dr. M. W. Foster.

Second Vice-President—Dr. C. F. Rich.

Recording Secretary—Dr. Geo. H. Cushing.

Corresponding Secretary—Dr. A. W. Harlan.

Treasurer—Dr. Geo. W. Keely.

Members of Executive Committee—Drs. A. O. Hunt, L. D. Shepard, and C. N. Pierce.

ANATOMY, HISTOLOGY, AND MICROSCOPY.

Section V was called. Dr. M. L. Rhein, the Chairman, presented a verbal report, in which he complimented the paper read by Dr. J. L. Williams, on Wednesday evening. Some points in the paper were discussed by Drs. Abbott, Pierce, and Spaulding, after which the Society adjourned to meet in Minneapolis, the first Tuesday in August, 1885.

PENNSYLVANIA STATE DENTAL SOCIETY.

SIXTEENTH ANNUAL MEETING, HELD AT WILKESBARRE, JULY 29, 30 AND 31, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY WM. H. TRUEMAN, D.D.S.

(Concluded from page 688, Vol. V.)

AFTERNOON SESSION OF WEDNESDAY, JULY 30.

The session was opened by Dr. Allen G. Bennett, of Philadelphia, who read a paper upon Operative Dentistry.

He suggested that in preparing a cavity, as far as possible those portions of the walls formed by the enamel should be made to conform to its lines of cleavage. Where this cannot be done, they should be beveled outward at an angle of from twenty-five to thirty-five degrees, almost its entire thickness; the softer the teeth the greater the necessity of this precaution. He thinks the neglect of this is often the cause of broken down margins around fillings. Although the enamel borders may seem strong, if the line of cleavage is undercut, as it may be in many cases where the walls are straight, the enamel is apt to give way at this point, and render the margin imperfect. He suggests that this could be studied by working upon a tooth that had been some time out of the mouth, and was perfectly dry, the lines of cleavage being more readily demonstrated than in a tooth in its normal position and condition. He recommended that the enamel edge should be carefully polished in all cases before commencing to fill.

He prefers grooves to retain the filling, only using retaining pits as a convenience in starting, and recommended the use of alkalies, antiseptics, or local anæsthetics in the cavity, where the condition of the tooth calls for them. In frail, sensitive teeth, he protects the dentine from contact of metallic fillings by a non-conductor. He thought much of the harshness complained of in cohesive gold was due to overheating in annealing, and overhammering, and that if care were used in annealing, and convex points with fine transverse serrations used in filling, the gold could be packed solidly and accurately, and uniform density with perfect welding be more certainly secured. Much has been said and written about moisture-tight fillings, but excavating with the oral fluids entirely excluded shows clearly that all the dentine is not "as dry as dust," and probably the moisture around a filling, in a soft tooth at least, may be entirely internal.

On the approximal surfaces of molars and bicuspids, he preferred to make a wide separation, and then restore the natural contour of the tooth. By this means he gets rid of weak edges, and removes the margins of the filling to a point easily inspected and kept clean. Contour is really separation made permanent; all the good of separation is obtained without its evils.

The weakest point of approximal fillings is always the cervical walls. This, he thought, is owing in a measure to the difficulty of properly preparing them. Quite frequently the engine cannot be used, and often when it is, it does not leave as smooth and level a surface as is desired. He has devised several instruments to more readily reach this point. They are somewhat like a hoe excavator, with a wide cutting edge, so shaped and bent at such an angle with the shaft that it is brought to bear upon the work very much as is the chisel of a carpenter's plane, and on this account it makes a smooth, clean cut, and can be made to follow the entire cervical border with one continuous sweep. The dentine at this point is usually soft, and requires a cutting tool with a thin edge brought to an acute angle. He exhibited several instruments, and they no doubt will accomplish the work well, and can be used effectively in a large proportion of cases. By modifying the cutting edge he finds them useful in beveling the enamel. He recommends using at this point soft gold when the cavity is quite accessible; in other cases prefers tin or amalgam, the latter for all deep cavities.

Dr. Gerhart—Suggested that when the rubber dam is on for a long time, especially when the hot air syringe is used and the cavity becomes perfectly dry, the tooth contracts, owing to the loss of moisture; the filling being put in while the tooth is in this condition, will not fit as accurately when the tooth returns to its normal state.

This gave rise to a long discussion, some contending that no change takes place; others that the tendency will be to make a more accurate fit between the tooth and the filling; and others again, that this change, though slight, is a source of danger, and the frequent cause of failures.

Dr. William H. Trueman—Related a case in which he had built up a tooth with the electric mallet, building the gold around the remaining portion of the tooth. Some months after, the root was split by violence, and had to be extracted. The gold and the portion of the tooth removed were firmly united, and after laying in the instrument case six or eight months there was no change; they were so dovetailed into each other that they could not be separated without fracture. They remained some twelve months more, almost forgotten, when they were again examined; the contraction was now so great that they fell apart. This demonstrates that when the dentine and enamel become perfectly dry there is a very perceptible contraction, but in this case it must have been about a year before it was noticeable. He did not think it possible for any material change to take place in the mouth during the short time a tooth would be covered by the dam, under any circumstances.

Dr. Darby—Thought the use of excessively cohesive gold, which is so apt to bridge and not pack down solidly at the walls, was more likely to be the cause of the trouble complained of than any contraction of the tooth, or change in the shape of the cavity. Except in special cases, he recommended a semi-cohesive gold as being more manageable.

Dr. Wingate—Referred to the old time methods by which good work was done without the rubber dam, and urged a return to the old practice in cases where it could be used to advantage.

Dr. Pierce—Spoke of gutta percha, recommending the pink in all cases where the filling was concealed. It contains less clay, and seems more durable than the white.

Dr. Darby—Mentioned the "Bevins" gutta percha, an article on the market some twenty years ago, but not now obtainable, as the best

he had ever known. There are several preparations that are good, but none equal to that.

Dr. E. H. Neall—Considered a good article of Hill's stopping to be the best filling for the approximal cavities in the teeth of children, until the twelfth or fifteenth year. Premium stopping, made by Johnson Bros., now sold by the S. S. White Co., he considered the best. He used it in small pieces, heating it on a metal plate, and carrying it quickly to the cavity, and thoroughly packing with a slightly heated instrument.

On motion the subject was passed.

At the evening session the society elected the following officers:

President—Dr. George Elliott, Meadville.

First Vice-President—Dr. J. L. Baker, West Chester.

Second Vice-President—Dr. J. W. Rhone, Bellefonte.

Recording Secretary—Dr. E. Kremer, Lebanon.

Assistant Recording Secretary—Dr. W. B. Miller, Altoona.

Corresponding Secretary—Dr. W. H. Fundenberg, Pittsburg.

Treasurer—Dr. C. R. Jeffries, Wilmington.

Board of Censors—Drs. William H. Trueman, C. S. Beck, James Martin, Alonzo Boice, P. K. Filbert.

State Examining Board (two elected yearly)—Dr. S. H. Guilford (re-elected), Dr. E. T. Darby.

Cresson was selected as the next place of meeting.

The following standing committees were appointed:

Executive Committee—Drs. W. H. Fundenberg, G. L. Robb, P. K. Filbert, E. T. Darby, W. B. Miller.

Enforcement of Dental Law—Drs. W. E. Magill, J. W. Rhone, William H. Trueman.

Publication Committee—Drs. S. H. Guilford, E. P. Kremer, C. J. Essig, William H. Trueman, William B. Miller.

Committee on Legislative Action—Drs W. F. Litch, Wm. B. Miller, M. B. Lowery, G. L. Robb, W. H. Fundenberg.

THURSDAY MORNING SESSION.

The time was mainly occupied in a general discussion upon Pyorrhœa Alveolaris, Capping Exposed Pulps, and Dental Prosthesis. Nothing especially new was presented.

Adjourned to meet at Cresson the last Tuesday of July, 1885.

NOTES.

Dr. Wingate, of Carbondale, exhibited a number of unique specimens of teeth that had been fractured in the mouth, and had united. All but one were from young patients. The exception was evidently an adult tooth, an incisor, and had been split almost the entire length of the root, and the parts slightly separated. Union had taken place by the same process by which fractured bones are repaired, the space being bridged over, except at one point, where an opening existed communicating with the pulp chamber, and this defect no doubt caused the loss of the tooth. One of the others had attached to it a bony process, starting from about the point of fracture (the fracture had been a transverse one about where the crown and root unite), and extending at right angles to the tooth about a sixteenth of an inch; it then curved abruptly down, and was perhaps a fourth of an inch long. Evidently when the injury took place a fiber or shred of periosteum was torn off, and had produced what the doctor facetiously termed a "pig-tail." He had six or eight in all. They were all so very much distorted in shape that their extraction was a necessity. He was unable to give their history, beyond the fact that their presence becoming a source of irritation they came to him for relief. The doctor has practiced a long time in the mining regions of Pennsylvania, where a large number of lads are employed in the coal mines, and are constantly exposed to accidents of various kinds. While in the coal mine we had an illustration of the risks they ran. While a train of empty cars, such as are used to carry the coal from the distant workings to the shaft, was passing, drawn by mules and going at a rapid rate, a party of lads employed in the mine rolled over the sides and threw themselves alongside the track. The danger of such an acrobatic feat will be understood when we say that there were scarcely eighteen inches between the top of the car and the roof of the mine, and but little more between the side of the car and the wall. They evidently were used to it, as all landed "standing," and enjoyed our surprise at their sudden and unexpected appearance. A very little miscalculation would be likely to cause a severe blow on the face. Probably the doctor was right in considering the specimens he exhibited the result of "skylarking."

Dr. William B. Miller exhibited an arrangement he had devised for mixing amalgam. He had been in the habit of mixing it in his

hand, but fearing that a feeling of uneasiness he had in his arm might be due in some way to the mercury, endeavored in the device to imitate as nearly as possible the palm of the hand and a finger. He took a block of rubber, such as stationers sell for erasing lead-pencil marks, and securing it in the lathe, first with a chisel, and then with a cloth wet with chloroform pressed against it while it was revolving rapidly, moulded it into the shape of a small mortar. The edges were then turned until it fitted tightly in a rubber case, such as is used to cover the magnet of a telegraph sounder. To the other end of the case he fitted a flat disk of glass, filling the space between them with plaster. On this he mixes the phosphate and other cements. For a muller, in mixing amalgam, he uses the rubber tip of a lead-pencil. He thinks that the soft rubber takes hold of the amalgam better, mixing it more thoroughly and quickly than a porcelain mortar. His method of using it is as follows: He adds to the fillings (or alloy) enough mercury to make a very soft paste, placing them in the rubber mortar together, and thoroughly unites them, using the rubber tip as a muller. To remove the excess of mercury he uses an amalgam carrier, consisting of a tube one-eighth of an inch in diameter, in which a piston is so arranged that when pressure is made upon the top of the instrument it descends in the tube. When all is ready the tube is filled with the soft amalgam by pressing it into the mortar. It is then rested against the side of the mortar and pressure made upon the piston. This forces out the surplus mercury. The amalgam may be made very hard if desired. It is then carried to the tooth, and pressure upon the piston lands the amalgam in the cavity. The doctor considers this more convenient than the usual way, as he can regulate the quantity of mercury to the requirements of the case.

Fleer & Co., of 1123 Arch Street, Philadelphia, exhibited a mouth glass, so arranged that when the glass is worn out or injured a new one may be inserted in a few moments, by unscrewing a ring which holds it in place. It also permits a plain and magnifying glass being used in the same frame. The cost is three dollars, including five extra glasses. The plain glasses are supplied at a cost of about forty cents each. The idea seems a good one, but we suggest that the size they have adopted, one inch in diameter, is far too large. Half that, or five-eighths of an inch, would be a much more convenient size.

CHICAGO DENTAL SOCIETY.

DECEMBER MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY A. E. BALDWIN, M. D.

The paper of the evening was by Dr. E. S. Talbot, and the subject was "*Contraria Contrariis Curantur*, as Applied to Dentistry." He said:

It was with surprise, not unmixed with dismay, that I received notice from the programme committee that a paper on the above subject would be expected from me. Just why I should have been chosen to discuss a dogma as fallacious as it is ancient, and which, in common with all dogmas of a medical character, I believe to be unworthy the support of liberal and enlightened minds, I cannot comprehend. Nevertheless, the fact remains, and the ancient mummy confronts me in very material form.

The subject of *Contraria Contrariis* is one which can only be handled by one of my medical opinion in a very gingerly fashion. More especially as there is little to do, save to build men of straw only to demolish them. If the committee have assumed that in assigning me this subject they are simply allowing the other side of the question an opportunity to be heard, as contrasted with the essay immediately preceding mine, they have made a mistake, and unwittingly done me an injustice.

It therefore becomes necessary for me to define my position by denying the implied impeachment, and disclaiming all faith in the so-called law of "*Contrariis*" as applied to medicine or dentistry It is none the less incumbent upon me to say something on this topic, for, though ancient and decrepit, it is as worthy our consideration as "*Similia Similibus Curantur*," or any other of the dogmatic beliefs entertained by medical sects.

This doctrine, as applied to medicine, was first taught by the Parisian school, of which Johannes Fernelius was the leader, in the sixteenth century.

Fernelius, in his famous work on Therapeutics, asserted that every disease must be combated by contrary remedies, for a remedy is that which drives out the disease. Now, that which drives acts violently; that which uses violence is in opposition; there-

fore, the remedy is always opposed to the disease, and no healing can take place except in virtue of the law of "*Contrariis.*"

It would be hard to imagine an assumption so replete with sophistry as this, and yet Fernelius was considered one of the great men of his time, and undoubtedly modified the medical literature of that period more than any of his co-laborers in science. But he was not content with the mere promulgation of a pet theory. He appreciated the fact that no position could be long sustained which was not susceptible of proof. To a man of the mental fertility and ingenuity of Fernelius, proofs for ever so fallacious a doctrine were not wanting. In the development of his law he includes under the term *Contrariis* not alone things possessing antagonistic elementary qualities, such as heat and cold, dry and wet, but all things which in any way differ, whether as to bulk or capacity, position, conformation, etc. Thus the compact and the soft, the thick and the thin, large and small, purity and impurity, are severally indicated by Fernelius as contraries. Such is the absurdity of the conclusion formed by a mind of superior attainments, when laboring under the incubus of a delusive dogma.

Modern science admits as contraries only those qualities of matter or forces which neutralize each other, which are also classed as contraries by Fernelius, as heat and cold, wet and dry, thus making his position still more untenable where these properties are contrasted with those mentioned further on in his classification, the north and the south winds, the centripetal and centrifugal forces.

The application of the doctrine of contraries, as advanced by Fernelius, to therapeutics, was most nonsensical, the precept being to treat diseases by remedies which differ from the disease itself, or its causes. To illustrate; we might brush the teeth with charcoal to prevent their decay, because charcoal differed from dental caries. So, even were the law of contraries correct, the practical precept is unworthy serious attention.

The law of contraries, as taught by Fernelius, is the law which the disciples of Hahnemann have for years been vainly endeavoring to father upon scientific medicine. Upon the absurdity of the alleged allopathic doctrine, they have endeavored to base the supremacy of a diametrically opposed dogma. What a waste of energy is this demolition of the allopathic man of straw!

Modern medicine is not based upon a peculiar dogma of any

sort, and it surely is a great waste of thunder for the advocates of the law of similars to exhume the venerable mummy, and abuse him. There are fresh victims enough to allow the poor old fellow to repose in peace, even when the ancient masters of medical art, Hippocrates and Galen, recommend the use of remedies contrary to disease. They implied, not the mistaken views subsequently held by Fernelius, but that certain diseases were curable by remedies whose virtues were in direct antagonism to the cause or principle of the disease; in short, they believed in specifics. Not so very illogical, after all, for are we not at the present day, no matter what our creed, searching for specifics? Is it not true that the medical millennium will never arrive until we have our twenty-five thousand diseases, and our innumerable remedies, classified in as simple a formula as castor oil and constipation, peroxide of hydrogen and alveolar abscess? I wonder if my homeopathic brethren ever realize the fact that when they are searching for specifics they are bowing the knee to the mighty Hippocrates, and that the law of contraries was but one of the principles involved in his most liberal of all therapeutical propositions, viz., that diseases are cured sometimes by contraries, sometimes by similars, and sometimes by remedies the action of which is neither contrary nor similar, but which operate in an inexplicable manner. This same wise doctrine will apply to our dental specialty quite as aptly as to general medicine, and it is, in fact, the basis of modern medical and dental therapeutics. Nothing could be more liberal or comprehensive. Verily, Hippocrates has not been styled the father of medicine for naught, and he is quite likely to maintain his paternal supremacy for ages to come, in spite of comma baccili and the bacterial development of future generations.

Humanity receives one of its greatest boons in the breaking up of the general practice of medicine into specifics. To practice a specialty with success is glory enough for one man, and success is assured when the limits of inquiry and investigation are circumscribed by specific practice.

It is this, also, which has done much in reconciling the different schools of medicine. In the investigation of disease the school is forgotten, and the physician wanders into the realm of contraries and similars, or into theories which are neither of these. Hence those practicing the same specialty, but from different schools, con-

sult frequently. Fortunately for our specialty, no other law is acknowledged save that laid down by the great Hippocrates. According to the law of contraries, the practitioner applies remedies regardless of cause or effect, without a definite knowledge of the case in the start. With the foundation of the present day in anatomy, physiology and chemistry, we are enabled by experience in both clinical observation and practice, to classify disease and to simplify remedies.

It is necessary in successfully practicing dentistry to be familiar with the anatomy of the parts to be operated upon, and the functions of these parts when in health. We can then appreciate the pathological conditions whenever they may present themselves. It is said by teachers of medicine that, having ascertained the cause of the disease, the remedy naturally suggests itself. This theory gains in practicability, and new discoveries in the nature and cause of disease are constantly being made. In the application of remedies, a thorough knowledge of their properties and therapeutic effect will aid greatly in the successful treatment of disease.

An old pactitioner of dentistry in this city has applied one simple remedy to many pathological conditions of the mouth for twenty years. He was ignorant of the cause of the disease he was treating, and of the effect of the drug used. He knew the drug to be harmless, and so freed his mind of the possibility of injurious effects. That he has not been a success is not surprising.

If by the application of the law of contraries to dentistry we accept Fernelius' conclusions, I should do so against all previous convictions, for, as before hinted, I am not an advocate of scientific dogmas, and, least of all, *Contraria Contrariis Curantur*, as applied to dentistry. If we look upon the application of contraries as understood by Hippocrates and Galen, where specifics stood in place of contraries, we may then apply this treatment intelligently in the practice of dentistry. A specific, according to Webster, "is a remedy which exerts a specific action in the prevention and cure of a disease." This definition would not accord with Fernelius' theory in the treatment of disease.

Dentistry has the advantage over other specialties in the ability to readily diagnose most lesions of the mouth, and to apply the remedies necessary. The first specific which deserves our attention is cleanliness. Next to godliness comes this specific, when applied to the

teeth. Faces and hands are cleaned frequently in the day, but it requires the greatest effort to clean the teeth one-half that number of times.

Patients insist that they take the greatest care and cleanse the mouth very frequently, but appearances indicate either that is not properly done, or that the unpleasantness of this duty makes them exaggerate the frequency.

Dentists examine and fill teeth and dismiss patients without definite instructions as to the care of the teeth afterward. In a year they are ready for treatment again, with new approximal cavties, or a decay around old fillings. The gums are in an inflamed condition, saliva vitiated, and in a strong alkaline condition, and when we tell them this condition is caused by want of cleanliness, they assure us that they brush the teeth two or three times a day. Still the fact remains: dentists should not only clean the teeth of patients, but with proper brushes, string and quill, go through the programme of thoroughly instructing patients in the first specific in dental pathology.

The dentist himself should have his teeth in a condition to invite inspection, and illustrate the rules he lays down to his patients. In treating neuralgia it is plain that no dogma or pathy can be associated, for we cannot say this or that is a cure for neuralgia, but by removing the cause we radically cure the disease. The idea of applying the same remedy to a disease in all cases should be discouraged, for while a remedy may produce the desired effect in a majority of cases having the same disease, it may fail in some. This is particularly noticeable in the application of arsenic for the destruction of pulps, and in the application of medicaments for the obtunding of sensitive dentine, and of iodine and aconite in pericementitis, carbolic acid and peroxide of hydrogen in alveolar abscesses.

The dentist finds that nine-tenths of his time is occupied in filling cavities in decayed teeth. Does it occur to him that he treats these lesions from a homeopathic principle, viz., by treating the symptoms?

We examine the teeth and find the cavity (the symptom); we fill it with gold, tin, amalgam or oxy-phosphate, regardless of the cause of the decay in the teeth. Few teeth are filled between the ages of twelve and twenty that do not have to be refilled in five or ten years. Decay of teeth is on the increase, and will continue to be until the cause is treated, instead of the symptoms.

THE NEW YORK ODONTOLOGICAL SOCIETY.

NOTES OF AN OBSERVER.

At the November meeting of the New York Odontological Society Dr. N. W. Kingsley read from copies of the *Medical Record* a number of articles, including editorials, on the subject of "dead teeth," and their influence on health when retained in the mouth. Every contributor who had written on the subject gave expression to the belief that diseased dental organs were a frequent cause of dire mischief to the animal economy, and some of the writers even intimated that roots and pulpless teeth should never be permitted to remain in the mouth, believing that although no perceptible injury might be manifested, or pain occasioned by their presence, they were nevertheless sources of constant local irritation, and produced constitutional disturbances which were likely to result in serious derangement to the body corporeal.

Many cases were noted from published reports of Dr. Samuel Sexton, Surgeon-in-Chief of the N. Y. Ear Dispensary, citing cases where diseases of the ear were supposed to have been occasioned by the presence of devitalized molars. In some of these cases a cure was effected by simply extracting one or more of these suspicious members.

The so-called "bridge-work," where dead teeth and roots are utilized as supports for artificial dentures, was severely criticised by one of the writers, who emphatically condemned this style of practice. Several of the contributors questioned the practicability of attempting the treatment of alveolar abscess, believing it an operation so extremely difficult to perform that few dentists existed who are competent to undertake the task, and even with good treatment such teeth were again likely to create trouble. Other writers did not consider such operations so very difficult, and believed that a large number of dentists treated diseased pulps, alveolar abscess and pulpless roots successfully, thereby saving them for long periods of usefulness, and with no discomfort to their possessors.

In commenting on these articles Dr. Kingsley could see much that he approved ; but some of the assertions he considered ridiculous. He could, however, see sense in a paragraph from one of the editorials, which suggested that physicians in general practice should become better posted in oral diseases.

Dr. J. Morgan Howe—the author of one of the papers published in the *Medical Record*, stated that he fully believed that dental lesions were important factors in the origin of many diseases, and were frequently the cause of much mischief. He spoke of exostosis, pericementitis, alveolar abscess, etc., as among these evils. He could not agree with a statement of Dr. Sexton, that "pulpless teeth can never remain in the mouth without causing irritation and endangering health." He can give numerous instances where they have been successfully treated, and has in his own mouth three pulpless teeth which were well treated, and for years have done their work faithfully, and are as comfortable as any of their co-laborers in the dental arches. He knew that a great many dentists were competent to do such work, and to do it well; yet care and skill were necessary in these cases. Dr. Howe further stated that the practice of indiscriminately capping pulps in their various conditions of health or disease was productive of more mischief and suffering than that induced by treating pulpless teeth. He also referred to the nourishment teeth receive through the pericementum, which keeps in a healthy condition many teeth deprived of their pulps.

Prof. Frank Abbott—author of another of the articles quoted from the *Medical Record*, dilated at length on the relation of diseased teeth to the general health. He thought Dr. Sexton deserved much credit for giving this subject so much attention, and believed his investigations would result in much good. He coincided with many of the views thus expressed, and he also had witnessed much trouble from a retention of worthless teeth rocking in diseased sockets, from alveolar abscess and pyorrhœa alveolaris. He reminded his hearers of the fact that immense numbers of diseased teeth are never presented to dentists for treatment, and that many are extracted in dispensaries, hospitals, and other places.

Dr. H. C. Houghton—A physician connected with the Ophthalmic Hospital instanced a visit to a lunatic asylum, through the apartments of which he was conducted by one of the inmates, whose mind, however, on some points was apparently clear. In calling the doctor's attention to a certain hobby of a fellow "lunatic," he quaintly remarked that there was simply this difference between the inmates and their visitors—"the former rode hobbies within the walls, while the latter rode them outside." The doctor seemed to realize the pertinency of the suggestion. He, however,

thought the subject an important one, and was much interested in the articles read by Dr. Kingsley, and the discussion which followed. He could fully agree with the statement of Dr. Howe regarding the capping of pulps. He had also witnessed trouble from teeth over-filled, or fillings so prominent as to prevent the teeth from coming naturally together, thus permitting too much force to come on a single point.

DECEMBER MEETING.

This was held at the residence of Dr. Wm. H. Dwinelle, on the evening of the 16th.

The merits of cocaine were discussed by a number of gentlemen present, who related each his individual experience with this pain-obtunding agent, in operations within the oral cavity.

The opinion seemed to prevail that it had little, if any, effect on sensitive dentine, but in cases of pulpitis its employment had been marked with various degrees of success, but perhaps not more so than with other agents in general use. It was also claimed that it can be used with perfect safety, and has proved an effective anæsthetic when applied to soft tissue; but its action on hard tissue is somewhat imaginary. It was also stated that experiment had demonstrated that a four per cent solution of cocaine was sufficient for all practical purposes, and no better result would follow if the solution was much stronger.

Dr. W. Geo. Beers—of Montreal, read a very interesting paper on "The Treatment of Children's Teeth." It embodied an earnest plea for the little ones who, as a rule, suffer much from the fruits of neglect, and whose teeth at an early age show evidences of disease, and are kept in a condition ever favorable to attacks from caries. Considering the abuse to which human teeth are subjected, instead of wondering why they decay so soon, it is a wonder how they can last so long. The lack of nourishment during the embryotic period, the want of better nourishment in infancy and through childhood, a too free indulgence in the use of saccharine medleys, were cited as among the predisposing causes of premature decay. He would give children a proper quantity of food, rich in lime phosphates. Can see no reason why preparations of phosphates of lime should not be of benefit to children with impoverished teeth. If well digested and assimilated, a sufficient amount would go to

supply the requirements of the animal frame-work, and if expectant mothers would keep themselves properly nourished, and practically observe hygienic laws, they would bring into the world children showing a better condition of health, and with prospects of good teeth, which if kept in a condition of cleanliness would serve them for many years.

Dr. F. W. Seabury—of Providence, R. I., exhibited a new vulcanizer, a beautifully constructed apparatus of his own invention, an exhibit of decided skill that reflects great credit upon the inventor. He also read a paper describing the effects of steam, and of dry heat, or *super-dry* heat, on rubber and celluloid, and followed with an explanation of the working qualities of his new appliance, which he claims as the safest and, in all respects, by far the best in use.

MASSACHUSETTS DENTAL SOCIETY.

Reported for the Independent Practitioner by W. E. Page, D. M. D.

The twentieth annual meeting of this society was held in the rooms of the Boston Medical Library, Dec. 11th and 12th, 1884.

The meeting was called to order by the president, Dr. D. M. Clapp, and the minutes of the last meeting were read and approved.

The annual address was delivered by Dr. E. G. Leach, of Boston. Papers were also read by Dr. G. F. Eames, upon "The Intimate Nature of Inflammation;" by Dr. J. H. Kidder, upon "Experiments;" by Dr. E. B. Hitchcock, upon "The Effects of Sugars and their Compounds in the Oral Cavity;" and by Dr. H. C. Merriam, upon "Gutta Percha and Its Uses in Operative Dentistry."

E. H. Bradford, M. D., exhibited a patient with congenital anchylosis of the jaw.

Dr. R. R. Andrews discussed different process of tooth formation, and exhibited twenty illustrative micro-photographs.

Dr. H. O. Marcy, chairman of the Committee on Legislation of the Massachusetts Medical Society, explained the object of the appointment of his committee, and presented a copy of the act to be laid before the legislature, and asked co-operation. It was voted that a special committee of five be appointed by this society, with full power to take such action as they deemed best regarding dental

legislation. The committee appointed consisted of Drs. D. B. Ingalls, J. G. W. Werner, G. F. Eames, E. H. Smith and J. H. Kidder.

Dr. W. E. Page, Committee on Diploma, presented a steel plate, a fac-simile of the old diploma, which was accepted.

It was voted that the semi-annual meeting be held in Worcester, in June, in conjunction with the Connecticut Valley Dental Society.

The officers elected for the ensuing year are:

President—Dr. J. F. Adams, Boston.

First Vice-President—Dr. J. G. Stevens, Lynn.

Second Vice-President—Dr. E. B. Hitchcock, Boston.

Secretary—Dr. W. E. Page, Boston.

Treasurer—Dr. Edward Page, Charlestown.

Librarian—Dr. R. R. Andrews, Cambridge.

Executive Committee—Drs. G. F. Eames, J. K. Knight, E. C. Leach, J. G. W. Werner, F. A. Cooke.

Editorial.

PREHISTORIC DENTISTRY.

In the leading article of this number will be found an account of recent discoveries in Italy that are of great interest, not only to the dentist, but to the archæologist as well. The origin of the ancient Etruscan race is lost in the dimness of antiquity; but it was undoubtedly either Pelasgian or Lydian, and the probable date of their settlement in Italy was about one thousand years B. C. They were a powerful people when Romulus founded Rome, and very many of the laws and customs, the civic and military methods of organization of the latter people, were derived from the Etrurians. For many years Rome was engaged in wars with one or more of the twelve cities of Etruria, and the latter history of the one and the early history of the other are inextricably blended. Coriolanus, when banished from Rome, fled to Volci, one of the twelve cities of Etruria, and being placed in command of their forces had nearly captured his native city. Shakespeare's tragedy is founded upon this incident. Etruria was finally entirely subjugated to Rome, and the nation was amalgamated with the Romans.

The ancient Etrurians were a very remarkable people. Among them the finer mechanical arts were cultivated to a degree that excites the astonishment of even this age. They were luxurious in their habits and dress, and exceedingly fond of personal ornamentation. Etruscan jewelry has been famous for twenty-five hundred years. We have seen specimens of it more than two thousand years old, that would be difficult of reproduction to-day by any but the most skillful of artificers. Everything pertaining to their history is lost, save that which has been found in and about their wondrous tombs, of one of which Herodotus gives an account (I., 93). It is here that the archæologist would most naturally look for any fine gold work, and Dr. Van Marter has probably struck one of the richest veins for the archæological dentist that the world affords.

We are well aware that Herodotus speaks of dentists among the early Egyptians, and that travelers have presented accounts of specimens of dentistry and instances of teeth filled with gold among various peoples, some of whom were scarcely above barbarians in social status. But we also know that it was customary with some of the ancient nations to ornament the bodies of the dead by gilding the teeth, and inserting bits of copper and gold in the mouth. The early Romans, indeed, always placed a coin in the mouth of the dead, to pay Charon for ferriage across the river Styx. Inasmuch as every account of prehistoric dentistry had come from those who were not experts, and who had not sufficient of technical knowledge always to discriminate between ornamentation of the dead and veritable prosthetic operations, we had entertained the idea that such accounts were unreliable, and that ancient dentistry was a myth.

Dr. Van Marter is, however, competent authority, and he has established beyond question the existence of skilled dentists during prehistoric times. It might not be unprofitable for those who are accustomed to boast of modern achievements, especially in prosthetic dentistry, after examining the plates and reading the article of Dr. Van Marter, to again read Dr. Bristol's "Personal Recollections" in the December number, and learn how the artificial teeth of sixty years ago compared with those of six hundred before Christ. It is the good fortune of the INDEPENDENT PRACTITIONER to present, so far as we know, the first *fully attested* account of such work.

Dr. Van Marter writes us that during his absence in Germany the past summer, some workmen near Bologna dug up about a dozen specimens of artificial dentures, and sold them for old gold. He has taken measures to secure all such in the future, and armed with permission from the authorities, from the Pope as well as from the civil power, he proposes to continue his investigations, and has promised the INDEPENDENT PRACTITIONER the results of his enquiries. They will be looked for with interest.

THE CHICAGO ANNUAL REUNION.

The annual banquet of the Chicago Dental Society, upon the 9th of December, was something more than a mere success. Socially it was a triumph, and the visitors from the East and the West went home with their hearts and their stomachs filled to overflowing with Chicago hospitality. We, of the less demonstrative East feel that we have done the fair thing if we receive our guests at our threshold, and make them welcome to all that we have. But that will not serve a western man. He wants to receive them at the city gates with a brass band and fireworks, and would place the whole earth at their disposal. Chicagoans are proud of their city, and they all seem inspired with a determination that every stranger shall be duly impressed with its greatness.

The guests of the Chicago Dental Society were the recipients of unnumbered courtesies. It was "Pop" here and "Prof." there, while "Aurelius" sweetly beamed smiles and attentions on all. In fact, we very much doubt if any one ever saw quite so much "Pop" before, within the same narrow limits.

Dibdin sings :—

> **There's a sweet little cherub that sits up aloft,**
> **To keep watch for the life of poor Jack.**

But when the sweet little "Cherub" heads the general conspiracy against the sobriety of staid professional men, it would seem that poor Jack's chances are materially reduced. The annual dinner, though elaborate, was not the chief attraction; the speeches were only so-so, but the conviviality of the occasion was unbounded. At the dinner at the Calumet Club, indeed, social enjoyment ran riot, and there was not one present, with the possible exception of the

host of the evening, who did not cast dignity to the winds and set out for a good time. It was an occasion to draw men into closer relations with each other, for the last crust of conventionalism was thoroughly thawed out. To the guests of the Chicago Dental Society the three days spent in that city will remain a petrified memory, fossilized, not as a dead but as an unchanging recollection.

"THE DIPLOMA TRAFFIC."

Under the above heading *The Dental Record,* of London, briefly reviews some of the abuses of authority on the part of American colleges. The editor closes the article by saying :—

"The loose manner in which degrees are conferred by certain dental colleges in the United States is notorious. Justice and good faith to those graduates who have complied with the educational requirements are looked for, and the honor and status of the dental profession demand their careful keeping. The bold course of action taken in this matter by the INDEPENDENT PRACTITIONER deserves the thanks of the profession at large."

That bold course made us enemies, as we expected it would, but the results have been even greater than we anticipated. We can assure our contemporary that we believe a substantial reform has been brought about, that this standing reproach to American dentistry has been removed, and that hereafter all reputable American colleges will, after this present term, refuse to graduate students except after attendance upon at least two full courses of lectures, of not less than five months each, the separate courses to be delivered in different years. We believe that *The Record* will be enabled to amend its expression in the first line quoted, and in future to say only—"The loose manner in which degrees *were* conferred, etc." At any rate, woe be to the college that infringes the new rule. State laws will enable State societies to throw out their diplomas, and prevent their graduates from entering upon practice, and this is a power that the larger States will not hesitate to use.

COCAINE.

Never within our knowledgs has the discovery of any new drug aroused the attention of the medical profession so thoroughly as has that of the properties of the Hydrochlorate of Cocaine. In all the departments of medicine it has been tried as a local anæs-

thetic. So general was the demand for it that the price, immediately upon its discovery, rose to an absurd point. Its effect upon mucus tissue is positively astonishing, and hence it has at once taken an important place in the materia medica of ophthalmology, and bids fair to become no less essential to the Gynæcologist. In dentistry its position is not yet fully determined. Some conflicting accounts are given. We have been favored with so many communications regarding it that there is not space to print them all, but the first three received are given in this number.

We have used it to a limited extent, but personal experience does not lead to the conclusion that the dental millennium has prematurely arrived. On all the mucus tissues of the mouth it exerts a charming influence, but as an obtunder of sensitive dentine, in our hands it has not so far proved reliable. We are inclined to the opinion that a strength of at least ten per cent. might prove more effective. It seems probable that hypodermic injections in the neighborhood of nerve trunks, as suggested by Dr. Hepburn in his excellent article in this number, might prove efficacious. In the meantime, as it is now obtainable, it would seem desirable that any operative dentist should make trial of its virtues, as by this means we shall, with the greater certainty and quickness, obtain an exact opinion of its merits in dental practice.

ONLY DELAYED.

The continuation of the report of the American Dental Society of Europe, and the report and papers from the Central Dental Association of Northern New Jersey, are crowded out of this number. We regret this, but it was unavoidable.

OUR BOOK TABLE.

THE FORMATION OF POISONS BY MICRO-ORGANISMS. *A Biological Study of the Germ Theory of Disease.* By G. V. BLACK, M. D., D. D. S. Philadelphia: P. Blakiston, Son & Co., 1884.

Immediately upon the reception of this work we gave it due notice, but the time was insufficient for such careful reading as would permit the formation of an intelligent opinion of its merits.

The first and second parts of the book are devoted to a general review of the whole subject, and to a consideration of the theories advanced

and the work accomplished by the eminent biologists who have made a special study of the matter. In condensed form is presented the gradual growth of the bacterian hypothesis, and the conclusions of men like Schwan, Schroeder, Bastian, Beale, Pasteur, Koch, and others.

The appendix is devoted to a consideration of the Germ Theory of Disease in its Relation to Dental Caries. The author reviews the work of Leber and Rottenstein, and of Magitot, and the theories of Watt, but bestows the greatest amount of attention upon the later work of Miller. He says that the latter commences where Magitot left off sixteen years previously, and that during that interregnum no new facts of importance had been developed or discovered. He traces the line of experiments of Dr. Miller, admits the important points so incontestably demonstrated by him, and states that the isolating of one or more acid-producing fungi, the preparation of pure cultures of them, and by their influence the successful decomposition of sound human dentine, "when compared with the best experimentation previously had marks a great advance."

The author then proceeds to draw attention to what he thinks may prove another source of caries of teeth. He says: "I have already spoken of the strong probability that the otherwise normal tissues, when under the influence of certain qualities of inflammation, emit a fluid of acrid and very irritating properties. * * * If a piece of ivory thrust into the flesh is attached and burrowed out in holes by a secretion thrown out by virtue of the irritation induced, as asserted by Krause, Kölliker, and others of the most capable observers of the world, why may not a tooth be attached in the same way, by virtue of the irritation of the tissues about its neck, or during the irritation consequent upon its eruption when this is unusually prolonged?"

This is worthy our serious consideration, yet we are afraid that the author will not find that dental pathologists will generally accept it as a primary cause of dental decay. At most it can be but secondary, for there is a state antecedent to this effusion that is pathological of itself. According to Dr. Black's own statement it is the result of irritation, and this then would be the prime factor, and a cure would be sought, not in neutralizing this effusion, but in removing the offending cause of it. If the bacterian origin of most dental decay be admitted, as it is by Dr. Black, and Dr. Miller's

established facts that the micro-organisms secrete or excrete an acid that is capable of disorganizing tooth structures, why should not these very fungi, as Dr. Miller asserts, be the origin of this acrid fluid, and thus the primal cause of the species of decay of which Dr. Black speaks? If we admit the formation of an acid or an acrid fluid by fungi that shall be sufficient for the production of decay in one case, why is it not most consistent to at least look for it in all analogous instances? The very title of the book is "The Formation of Poisons (acrid or irritating fluids?) by Micro-Organisms." It would, therefore, seem as if the cause assigned by the author as primary might readily be traced to an antecedent one, not very far removed.

The book is the latest and best of the reviews of the bacterian theory of disease from the standpoint of the dentist, and as such, aside from the respect which every one must feel for the opinions and deductions of so thorough a student, so competent an observer, so learned a writer and teacher, and so candid a man as is Dr. Black, it will command the attention of every intelligent dentist, and we hope will be widely read and thoroughly studied, as it deserves to be.

A Complete Index to the Dental Cosmos. The S. S. White Dental Manufacturing Co., Philadelphia, 1884.

No dental library is complete without a full set of the *Dental Cosmos*, and certainly no one can obtain the full benefit of this encyclopedia of dental science without the complete index to the twenty-four volumes already issued. The book owes its existence to the continual need for it felt by Dr. A. L. Northrup, who began the work afterward carried to completion by Dr. Jas. E. Dexter. Some idea of the comprehensiveness of the volume and of the amount of labor bestowed upon it may be gathered from a knowledge of the fact that it contains 30,000 references. Every topic that is treated of anywhere in the twenty-four volumes is appropriately indexed under the several headings of authors, titles, subjects. For instance: "Anæsthetics" has 260 references, and other important subjects have a proportional number. The references to authors form a curious subject of study, and indicate how thorough has been the scanning of all the volumes. Naturally, the editors of the journal come in for the greatest number of quotations, and we find that Dr.

J. H. McQuillen is referred to 217 times in the first thirteen volumes, while Dr. James W. White is credited with 232 references in the last twelve. Dr. James D. White has 140 references in the first fourteen volumes. Dr. J. F. Flagg leads the list of contributors with 134 quotations, and he is followed by Dr. Garretson with 98, Dr. Atkinson with 77, and Dr. Latimer with 45. There have been published in the *Dental Cosmos* 267 reviews, more or less elaborate, of new books and pamphlets relating to dentistry. Of "recipes" 630 have been given, and each is so thoroughly tabulated that it may readily be found. Under the head of "Tumors" there are 188 references.

We might go on speaking of the interesting facts revealed by the volume, the evidences of the immense amount of labor involved in the editing of a first-class professional journal, but we can only do it effectually by referring the curious to the volume itself.

Medical Rhymes. *A Collection of Rhymes of ye Ancient Time, and Rhymes of the Modern Day; Rhymes Grave and Rhymes Mirthful; Rhymes Anatomical, Therapeutical and Surgical; All Sorts of Rhymes to Interest, Amuse and Edify all Sorts of Followers of Esculapius.* Selected and compiled from various sources by Hugo Erichsen, M. D., with an introduction by Prof. Willis P. King, M. D. Illustrated: J. H. Chambers & Co., St. Louis, Mo., 1884.

This handsome volume of 220 pages is just the thing to amuse the leisure hours of a physician. Its scope and character are amply set forth in the full title which we have quoted. It must not be thought, however, that it is a collection of jingling doggerel, for it is far removed from this. Some of the poems are by famous authors, and are a part of the standing literature of the age. Some of them contain the most dainty bits of sentiment. Some are very humorous, while others are almost lachrymose in their solemnity. But the selections are most admirable in their character, and together they form a volume that would prove a tasteful ornament to the reception room of any general practitioner, or medical specialist. J. H. Chambers & Co. are gaining the reputation of furnishing to the profession dainty volumes, and this is one of their handsomest.

A New Method of Recording the Motions of the Soft Palate. By Harrison Allen, M. D., Professor of Physiology in the University of Pennsylvania. Philadelphia: P. Blakiston, Son & Co., 1884.

This is a most ingenious monograph of a very ingenious method of determining the exact motion of the soft palate in talking, coughing, inhaling, exhaling, swallowing, etc., etc. A straight rod passed through the nose from before backward in the living subject as far as possible, impinges against the roof of the naso-pharynx. The external end of the rod now being raised, the pharyngeal end lies in such a position as that it will be influenced by every motion of the soft palate. By an ingenious contrivance this is so connected with a revolving barrel that sphygmographic tracings are made upon prepared paper. The sounds of the various letters are now given, sentences repeated, and all kinds of articulate noises made, which are instantly recorded. The tracings of many of these are given in the book, and some curious facts revealed. It is impossible within the limits of such a notice as this properly to analyze them, but it is evident that their study may greatly assist the analysis of language, and perhaps aid in the better understanding and cure of stammering, and other infirmities of speech.

We have also received the following books and pamphlets:

Transactions of the Michigan State Dental Society, 1884.

Transactions of the Louisiana State Medical Society, 1884.

Notes on the Opium Habit. Third Edition. Revised and enlarged. By Asa P. Meylert, M. D. New York: G. P. Putnam's Sons.

Muriate of Cocaine in Ophthalmic Surgery. By C. J. Lundy, M. D. Reprinted from *The Physician and Surgeon.*

New and Improved Process of Manipulating Gold, Rubber, and Celluloid, for Dental Purposes. By Frederick Wheaton Seabury, Dentist, Providence, R. I.

The Rubber Question. By Mrs. M. W. J. Reprinted from the *Southern Dental Journal.*

Oral Hygiene. By Meyer L. Rhein, M. D., D. D. S. Reprinted from the *New England Journal of Dentistry.*

One Aspect of the Subject of Medical Examination. Report of the Secretary of the North Carolina Board of Health.

Jequirity: Its Uses in Diseases of the Skin. By Jno. V. Shoemaker, A. M., M. D.

Notes on the Treatment of Trachoma by Jequirity. By Leartus Connor, A. M., M. D.

Mumps as a Cause of Sudden Deafness. By Leartus Connor, A. M., M. D.

The Dry Treatment of Chronic Suppurative Inflammation of the Middle Ear. By Charles J. Lundy, A. M., M. D.

Fleer & Company's Dental Catalogue, 1884.

Bericht ueber die Verhandlungen der VI. Jahresversammlung der Zahnarzte Skandinaviens. Separat-Abdruck aus dem "*Correspondenz-Blatt fuer Zahnaerzte.*"

Die Ausuebung der Zahnheilkunde im deutschen Reiche. Separat-Abdruck aus der *Koelnichen Zeitung.*

Current News and Opinion.

LISTERINE.

As a deodorant and antiseptic for the sick-room and dentist's office, Listerine stands pre-eminent. While it is equal to any and superior to most of the agents commonly used under such circumstances, it adds an agreeable aroma instead of an offensive odor to the surroundings, and is particularly well adapted to the lying-in room. It may be freely used in spray or lotion, without stain or irritation, as an agreeable and effectual detergent. It is also specially commendable in weak solution as a mouth-wash and gargle for aphthous sores or a fungus condition of the gums, and bad breath; and for certain forms of indigestion—those accompanied by disagreeable eructations—a few drops of Listerine in water, swallowed, is a particularly grateful and excellent remedy. Moreover, according to a series of "Experiments upon the Strength of Antiseptics," by Dr. A. T. Cabot (Boston *Medical and Surgical Journal*, Nov. 27, 1879), Listerine compares favorably with the most reliable agents for the rapid destruction of micro-organisms.—*The Sanitarian*, Oct., 1884.

This is "praise from Sir Hubert." Certainly there is no higher authority in America upon antiseptics and general hygiene than is this most excellent journal.

ANNALS OF SURGERY.

With the new year, J. H. Chambers & Co., the medical publishers of St. Louis, commence the issue of an important journal under the above title. Since the suspension of the *Annals of Anatomy* there has, until now, been nothing to quite take its place. But the new journal will occupy even broader ground than did that, and, we doubt not, will soon become familiar to medical literature. It will be published monthly, simultaneously in the United States and Great Britain, and will be edited by Lewis S. Pilcher, A. M., M. D., of Brooklyn, formerly editor-in-chief of the *Annals of Anatomy*, and C. B. Keetly, F. R. C. S., of London, England, with a very able corps of collaborators in both countries. It will be the only journal in the English language devoted exclusively to surgery. Five dollars per year. Address the publishers.

BOSTON, Dec. 16, 1884.

The seventeenth annual meeting of the American Academy of Dental Science was held at Young's Hotel on Wednesday, Nov. 5 1884.

The following officers were elected for the ensuing year:

President, Dr. Geo. T. Moffatt.

Vice-President, Dr. J. H. Batchelder.

Recording Secretary, Dr. E. E. Hopkins.

Corresponding Secretary, Dr. E. B. Hitchcock.

Treasurer, Dr. E. H. Smith.

Librarian, Dr. H. C. Meriam.

Executive Committee, Drs. C. P. Wilson, E. C. Briggs, J. S. Mason.

The annual address was delivered by Dr. E. N. Harris, of Boston, a copy being requested for publication.

E. E. HOPKINS, Rec. Sec'y.

NEW YORK ODONTOLOGICAL SOCIETY.

The officers elected for the ensuing year are:

Dr. Wm. Jarvie, Jr., President.

Dr. J. M. Howe, Vice-President.

Dr. E. T. Payne, Recording Secretary.

Dr. S. E. Davenport, Corresponding Secretary.

Dr. J. S. Goodwillie, Librarian.

Dr. W. A. Bronson, Curator.

Drs. C. A. Woodward, S. G. Perry, H. G. Mirick, Executive Committee.

THE PENNSYLVANIA SOCIETY REPORT.

In this number we bring to a close the admirable report of the annual meeting of the Pennsylvania State Dental Society, prepared for this journal by Dr. William H. Trueman. It is not every one who can seize upon and present the interesting portion of the debates in such a meeting without loading up the report with that which is of no moment, or of interest to but a small number. Dr. Trueman wrote up the meeting of last year for this journal, and when we had secured his consent to do the same for the sessions of 1884, we were satisfied that the matter was in competent hands, and we are sure that our readers will now agree with us.

DR. SWASEY'S ECONOMIC DISK MOULD.

For years we have been paying twenty-five cents or more apiece for disks that need not cost a tenth of that sum. Dr. James A. Swasey, of Chicago, has devised an apparatus by the use of which corundum and rubber disks may be made of different styles and forms, at an expenditure of very little time and less money. Any dentist or dental assistant can turn them out by the dozen, ready mounted and centered. The apparatus is very simple, as are all really effective utensils.

REMITTANCES.

Some of our subscribers delay paying their subscription fees because they dislike to make out checks for such a small amount, nor do they like to send money through the mails.

We would suggest to our friends that *postal notes* can easily be procured from postmasters, and are a safe and convenient method of remitting their dues.

"DONALDSON'S NERVE BRISTLES."

Just the nicest instruments we have found for removing the contents of pulp canals. Exceedingly delicate and pliable, but firm, tough, and not easily broken. Can be procured at the depots.

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A second-hand Wilkerson chair in good working order. Answer, with price, and where the chair can be seen.

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(37.) In order to correct a mal-articulation for a lad sixteen years of age, whose superior incisors passed behind their inferior neighbors in their occlusion, a metallic plate was made to cover the lower front teeth, to which was soldered an inclined plane attachment. When this was inserted the youth was directed to "bite hard, and bite continually," and the instructions were carried out as faithfully as possible. In three months the upper teeth were brought in proper position, but the severe pressure destroyed the vitality of the two inferior lateral incisors, which are much discolored. It is over fifteen years since the appliance was worn, and the patient observed the change of color about three years later.

As these teeth have never given any annoyance whatever, would it not be well to leave them unmolested, instead of risking disturbance in an attempt to bleach them? R. H. B.

(38.) I have a lady patient who suffers from frequent attacks of acute neuralgic pain, more particularly in the left side of her head and face. Her hair has prematurely turned gray, and her left ear has recently lost its hearing, which her physician (an eminent aurist) pronounces a catarrhal lesion. Quite a number of her teeth, although free from caries, are loose, especially the left superior molars and bicuspids, and at times they are the cause of much pericemental irritation. They are somewhat benefited by treatment, but when treatment is suspended they again become troublesome. It seems hardly possible that the teeth have occasioned the neuralgia, yet their presence may aggravate it. Would it be advisable to extract the teeth, and, if so, could we hope for favorable results? Boston.

(39.) What is a fellow to do in such a case as this, and how can he possibly diagnose in advance the true condition of affairs?

Miss H. visited me six months ago, and presented a tooth with an exposure of the pulp. It was in due time capped, and the cavity filled with oxy-phosphate of zinc. There was no pain or soreness following, but the tooth seemed somewhat loose, and kept slowly getting more so. When she came the other day there was entire insensibility to thermal changes, and the tooth seemed devoid of sensation. So I concluded that I had a dead pulp, as I had often had before after such capping, especially as I thought that the color had changed somewhat. I drilled the tooth open without causing any pain, burred out the pulp chamber and thrust a Donaldson broach into the canal. There was very little sensation, but blood followed the broach, and continued to flow for some time. I don't know what it means. I sealed the cavity up temporarily, and thus it remains, with no pain or soreness. I wish that some one who knows more than I do would tell me what to do with it. Cincinnatus.

(40.) Why will dentists persist in calling the contents of the pulp canal "the nerve?" If they know anything they must know that the nerve proper forms but a very small proportion of the tissue of the tooth pulp. It sounds ridiculous to hear intelligent dentists speak about the "bleeding of the nerve."

Pennsylvanian.

Answers.

L. R. (23.) In most cases there is little necessity for cutting the gum around teeth that are to be extracted, especially if there be teeth on each side. But sometimes a tooth stands alone, and there is evidence that the gum is closely adherent, it appearing to be entirely healthy and growing well up on the tooth. This is often the case with wisdom teeth. In such cases it is prudent to press a gum lancet down to the alveolar border when there appears to be adhesion. If there be much inflammation, and especially if there be suppuration or symptoms of pyorrhœa, it is but unnecessary cruelty to cut the gum. I have seen very severe lacerations caused by carelessness or inattention to the condition of the gums previous to extraction, however. C. E. R., New Jersey.

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To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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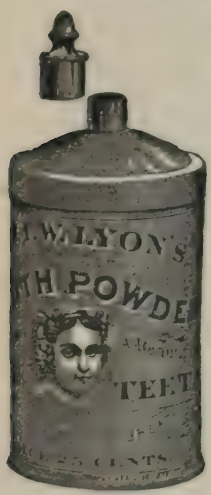
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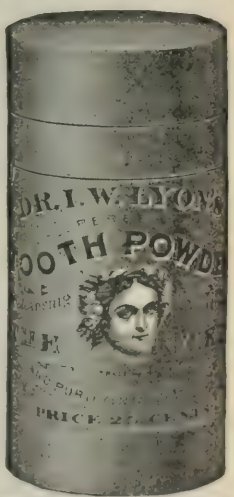
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THE

Independent Practitioner.

VOL. VI. FEBRUARY, 1885. No. 2.

Original Communications.

PRACTICAL EXPERIENCE IN THE USE OF OXY-PHOSPHATE CEMENTS.

BY DR. W. D. MILLER, BERLIN.

On beginning the practice of dentistry in Berlin in the spring of 1879, I found a filing material extensively used by German dentists which I had never met with in America.

It at once attracted my attention on account of its superior hardness and apparent greater durability; it was also very highly commended by different practitioners with whom I spoke concerning it. This material was the now well-known oxy-phosphate cement.

It possessed a very evident advantage, in that it could be had in all possible desirable shades of color.

I immediately set about to determine by experiment the comparative solubility of the new material and the older oxy-chlorides in various solvents which were likely to be found it the human mouth. The results of these experiments were presented at the Lucerne meeting of the American Dental Society of Europe, in 1880. I bored holes, all of the same size, in strips of hard wood or ivory, filled them with the various cements to be tested, and im-

mersed the strips in solutions of various organic acids, also in mixtures of saliva and bread, saliva and sugar, etc., etc.

The result was the same in all cases.

The oxy-phosphates, Poulson, Wolff, Lorenz, Rostaigne, etc., withstood the action of the solvent about equally well, and far better than any of the oxy-chlorides.

This is a result which I have also found to be justified by practical experience, as I can show fillings to-day which have been in the mouth over five years, and are still holding well.

One other result of these experiments was to induce me to use the oxy-phosphates to some extent in my practice, an unfortunate result, for I am now convinced that of all materials put into the hands of dentists for filling teeth, the oxy-phosphates are the most unreliable and treacherous. We sometimes see fillings so situated that they are constantly kept clean, which have stood the test for years with scarcely any alteration; while, perhaps, in the very next mouth that we examine, we will find fillings which were inserted only a few weeks previous, crumbling to pieces. Even after I had had a number of failures I was not willing to give up the material entirely. I held to the view that the fault was not in the material, but in the operator, and that greater care in mixing the cement, greater care in inserting it, excluding every trace of moisture, and greater care in properly finishing the filling, would insure uniform and good results.

I now know that the fault lies, in a great part at least, with the material. If the manufacturer succeeds in producing a good article, which is not by any means always the case, it being sometimes necessary to call back a "batch" after it has been distributed among the consumers, and if the operator succeeds in keeping it under such conditions that it does not attract too much moisture, and if he by chance mixes it in just the proper proportions to give the best results, and inserts it and finishes the filling with the proper amount of care, under complete exclusion of moisture, then, in crown cavities, it *may* in some mouths last four or five years, or even longer. The filling should always be examined a few days after insertion, to determine whether it has properly hardened, and in no case can it be guaranteed to last a certain number of years, or even months.

In all those cases where a filling of the nature of cement seems

most to be indicated, in extensive cavities, on the approximal surfaces of bicuspids and molars, nearing the pulp, it has proved a failure, unless employed as a temporary filling, and even then its value is very questionable.

If we make, with all due caution, a filling of oxy-phosphate on the approximal surface of a bicuspid, tooth very soft, decayed under the gum, and pulp nearly exposed, the chances are, that at a time by no means very far off, the patient returns with an aching tooth; we find a large cavity under the margin of the gum, and an exposed, inflamed pulp. In such cases cement should not be used, even for temporary purposes, unless the neck of the tooth is protected by a layer of gutta-percha.

This result is brought about, not by the disintegration of the cement alone, but secondary caries seems to progress with considerable rapidity, because the antiseptic property of the filling material is almost zero, and because the concavity produced by the dissolution of the cement, as well as the roughened surface of the same, retains particles of food, and possibly because the oxy-phosphates contain substances well suited to the wants of the micro-organisms of decay.

I do not say that the result will *always* be as I have indicated. I have seen many notable exceptions, but it will be so in such a large proportion of cases as to render it entirely unsafe to place any confidence in a filling of oxy-phosphate; so that now, after an extensive experience in the use of this material, I have abandoned it altogether, except for upper front teeth, where the patient objects to the use of gold on account of its appearance; or, occasionally, for temporary teeth and for setting pivot teeth.

As a capping for exposed pulps, oxy-phosphates have, in my experience, proved an equal failure. Personally I have never made use of it for this purpose, but I have had abundant opportunity to watch its effect when employed by others, and the number of fillings that I have been obliged to remove on account of the supervention of pulpitis and pericementitis is sufficiently great to render its use in my own practice unjustifiable.

Especially where it is necessary, for some cause or other, to leave decayed or softened dentine in the cavity, oxy-phosphates should be avoided, as the smallest amount of moisture in the dentine prevents the thorough adaptation of the cement to the tooth structure; we

do not secure a perfectly water-tight filling, and secondary decay is likely soon to follow. For all such cases (incisors and anterior surface of cuspids excepted) a filling combined of tin and gold is far better, and, indeed, it would be difficult to find a case where oxy-phosphates may be used which could not be treated to much greater advantage with the Abbot combination filling, and in a great many cases the latter may be used with success where oxy-phosphates are altogether out of the question.

The latter, undoubtedly, when properly hardened, resist the action of the fluids of the mouth much better than the other cements now in use, but their susceptibility to the action of moisture while in the soft state, their inequality and their lack of antiseptic power, very materially diminish their usefulness.

We need, at present, in a cement, a material which may be used in very soft, porous teeth, sometimes over partially decalcified moist dentine, and which will not only stop the decomposition of the softened dentine under the filling, but will also effectually shut out external agents, and at the same time, if possible, incite the underlying dentine to a recalcification. In all these points the oxy-phosphates are wanting, besides giving very inconstant results, even in more favorable cases.

There will, no doubt, be some who will not agree with me in placing so low an estimate upon these cements. Two years ago I should myself have expressed a very different opinion of them. Nor would I attempt to dissuade any one who chooses to test the matter in his own practice from so doing, since it is only by the combined experience of many that the whole truth may be reached.

AMALGAMS.

BY DR. W. ST. GEO. ELLIOTT, LONDON.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE AT ITS TWELFTH ANNUAL MEETING, AT VEVEY, SWITZERLAND, AUG. 26, 27 AND 28, 1884.

Last year I had the pleasure of reading a paper before this society on the subject of Amalgams. I then gave you in tabular form the results of numerous experiments carried on for a period of sev-

eral months, but I was not satisfied as to their accuracy; my balance turning at a milligramme was not sufficiently delicate, and inadequate time was taken for the experiments. You may remember that I then mentioned that the test I used for shrinkage was that known as the specific gravity test, and that I watched the changes in the specimen under examination for three days.

Thinking to make the experiments more valuable I have gone over the whole field again, and for the specific gravity have used a balance turning at 1-10 of a milligramme. The observations for shrinkage were continued for a week with each kind of amalgam, and the results are given in the table, a part of which was published in the transactions of the Odontological Society of Great Britain.

SULLIVANS.

TIME.	DRY.	MEDIUM.	SOFT.
	1681.5	1806.3	1810.5
12 hours,.....	1703	1811.5	1817.5
3 "	1710	1814.3	1821.5
4 "	1709.2	1815	1819.4
4 "	1710.3	1812.2	1822.5
12.45 "	1713.6	1813.5	1822.5
4.15 "	1715	1815.5	1822.5
6.30 "	1715	1812.5	1822 5
13.45 "	1715.3	1811.5	1820.2
4 "	1710.5	1811.5	1818
7.30 "	1706.1	1808	1817.7
11.30 "	1706.5	1808	1817.7
5 "	1708.1	1808.3	1818.2
7.30 "	1709.1	1808	1820
11.30 "	1708.9	1809	1818.6
6 "	1709	1811 9	1827.7
6 "	1706.7	1809	1818.6
36 "	1706.7	1808.4	1820.9
4.15 "	1707.5	1809.3	1820.9
6.15 "	1710	1807.5	1818.5
7 days, ...	—29.5	—1.2	—8

The column on the left is for hours, showing the number of hours since the last observation. The next three columns show the weight in water of the specimen (1 gramme) mixed dry, one medium, and one moist; the dry was mixed with as little mercury as would serve to barely keep it together; the medium, to the consistency ordinarily used in practice, while the moist was very much so. The weights are given in milligrammes, and shrinkage is shown by an increase in weight. The remarkable variations in weight, showing contraction and expansion, have been noticed in

all the amalgams experimented on. The last line shows the result in shrinkage at the end of seven days.

AMALGAMS.	SHRINKAGE.			SPECIFIC GRAVITY.			BREAKING STRAIN.		
	Dry.	Medium.	Soft.	Dry.	Medium.	Soft.	Dry.	Medium.	Soft.
Stewart's Sullivan's,	—30.9	— 5 2	—13.5	9.873	12.062	10.342	2	2 9-10	2
Sullivan's,	—27.5	— 1.2	— 8	10.773	12.651	11.647	3	3 7-10	4
Bonwill's,	—24	—14.8	—10.5	8.695	9.202	10.101	9 1 5	10 2.5	6 1-2
Hallam's	—21.1	—16.3	— 7.5	8.620	9.785	9.288	17 1-11	10	3 2-5
Gregory's	— 5	— 6.3	—13.9	10 127	9.478	10.476	15 7-10	10 1-5	12 1-10
Lawrence's	—25.5	— 6.9	— 5	9.083	9.174	9.523	12 1-10	9 1-10	2 9-10
Flets: Flagg's Stand.,	+ 2.6	— 6.6	— 2	9.69	9.174	9.433	15 1-2	5 4-5	2 9-10
" Extra Plastic,	+27	— 8 7	— 5.4	9.934	10.51	9.615	8 1-10	5 3-10	5 7-10
" " " 2d qual	—18	+14	— 7	9.352	9.95	10.359	6 1-5	1 3-5	1 9-10
Ash's	—10	— 7	— 1	10.115	9.975	13.439	11 3-5	9 1-5	10 3-5
Davis' Gold,	—12	— 5	— 8.3	9.509	9.97	10.071	9 9-10	9 7-10	8 1-5
" Crystal Gold,	—22.5	— 8.5	— 3.5	9.345	10	10.255	11	10	8 4-5
Nickold's,	—13.4	— 3	— 3	9.514	10.05	10.101	14 1-11	9 4-5	8 3-10
Robertson's X. L. ,	—21	— 1.4	— 3	9.2165	9.756	10	13 4-5	13 3-5	11 3-5
Fletcher's Pl. and G.,	—23	—16	— 5	9.0497	9.8522	10	15 7-10	14 1-5	15 7-10
Robertson's Stand.,	— 3	— 1 6	+28.4	9.2165	9 756	10.0502	15 1-5	11 3-5	10
Davis' No 2.	— 7.2	— 4.5	+33	9.3023	9.9502	10.1522	12 4-5	12 1-5	11 4-5
Dental M'f'g No. 2,	—12.4	— 3	— 1.1	9.2165	9.9502	10.2565	12	11 7-10	10 3-10
Fletcher's Flagg's Con.,	—24	— 6	— 3	9.4366	10.204	10.4114	9 4-5	9	12
Standard { Schfeldt and Dubois,	—27	—11	— 2	9.2639	10.2565	10.7521	10 3-10	9	12 7-10
Townsend's,	—11	— 5		9.0497	9.756	10.1522	17 1-5	12	10
Chicago,		— 2 5	— 5.5	8 5836	10	10 1011	11 7-10	9 1-5	10 1-5
Arrington's	+22	— 3	+ 5	8.7719	9.9009	10	11	10	9
A { Silver, 30 gms. Tin, 20 "	—44	— 4	— 2	8.4786	10.2564	10.0951	9	12	10 3-5
B { Silver, pure, 15.555 gms. Tin, 11.703 gms.,	—14	— 1	0	8.4786	10.2564	10.0951	7	12 3-5	15 1-2
C Coin Silver only,	—33	— 6	— 7	11.7047	11.7047	11.7047	6 1-5	8 3-10	8 1-5
D { Coin Silver, 15 gms. Tin, 3 gms.,	—27.6	—25	— 5				8	8 7-10	8 1-5

Pure Mercury

The second table gives, first a list of the amalgams experimented upon ; secondly, their aggregate change, shrinkage or expansion in the dry, medium, or wet form ; the next three columns show the specific gravity ; the last three the breaking strain in pounds, as applied to disks, 1 milligramme in thickness and 7.20 milligrammes in diameter ; also in the three forms dry, medium and wet. These disks were made in steel rings of the requisite thickness, and allowed to harden 24 hours ; then the amalgam was extracted from the ring by being placed in a cylinder with an orifice the size of the disk, when a plunger exactly the size of the disk was forced through the cylinder pushing the disk before it; by this means it was possible to remove the disks from the rings without injuring

them. After hardening for one month these disks were tested in a micrometer, and were shaved down to 1 mm, tested to the 1-100 of a mm. They were then supported in the breaking apparatus, which consisted of a horizontal cylinder with a blunt conical plunger pressing in the center of the disk, the force being measured by a self-registering balance. I recognize most fully that these experiments cannot be considered conclusive. A much larger number of disks should be made of each kind of amalgam; my opportunities only allowed me to make fifteen to eighteen of each. Perhaps the most prominent benefit the profession can derive from these experiments is the knowledge that there is an individuality about each and every amalgam, which makes it incumbent upon the manufacturers to ascertain positively under what conditions it will give the best results. The majority of practitioners, for some reason, use their amalgam dry; doubtless because in working it gives one the impression that the best results should occur with the least mercury, whereas the experiments go to show that many do better when either mixed medium or moist; some are decidedly better mixed wet. When experiment has proved that a certain proportion of mercury gives the best results, then each package should be so labelled by the maker; we have had enough of the untruthful statements of manufacturers, such as "This Amalgam does not shrink nor discolor in any mouth, etc," "This Amalgam should be used as dry as possible, etc." The last would be all right if it were followed by some qualifying statement, some facts for us to base our judgment upon. Gentlemen, please to take my experiments *cum grano salis.* Do not accept them as proving positively the property of any amalgam. Indeed, there cannot be that scientific accuracy that we so desire; at least there is no prospect in our time, because it is practically impossible to get perfectly pure metals to experiment with, and as the amount of impurity must vary, so will the results. My investigations, substantiated by clinical observations, fail to show that even the fairly pure materials we may get give any better or more uniform results than the less expensive; nor do the results in these experiments show greater variation than is to be found in the published results of experiments with the alloys for mechanical purposes.

THE STANDARD OF WORK ON THE NATURAL TEETH THAT THE DENTIST OF THE FUTURE MUST BE EQUAL TO.

BY E. PARMLY BROWN, D. D. S., FLUSHING, N. Y.

The highest type of tooth preparation for gold building on decayed teeth is that which removes the most of the damaged tooth material, and cuts into and takes away the least of the uninjured structure, all other things being equal.

The most durable gold filling, applied to this ideal cavity, is that which is most dense up to a certain requirement, from the begining of the retaining pits to the final finished surface. Density, combined with cohesion in its most perfect state, is requisite at each under-cut, retaining pit or dove-tail, to retain the filling in position, and to enable the operation to progress from its beginning to its completion without its budging, and finally to permit its being used for years or a life-time without giving way. The density of the center should be sufficient to prevent interference with permanent strength, or with the ability of the operator to accomplish all the auxiliary necessities. The density of the surface must be sufficient to permit the smooth and spotless finishing, and the permanent retention of artistic contour. The density of the margins of gold, where the tooth structure and filling join, must be sufficient to prevent and preserve a smooth and unbroken edge.

The highest type of enamel or tooth margin, which is to meet the gold margin, is that which is the farthest from forming a sharp edge or acute angle, to avoid the crumbling of the margin during insertion of the gold, as well as to prevent its breaking down by usage and time.

The highest type of gold margin which is to join the tooth margin is that which leaves the gold the farthest from a feather edge. And as these margins of different substances are always to meet each other, an obtuse angle to its edge must be given that which needs it the most, the enamel, which is of a brittle nature ; the one that should receive the most acute angle to its edge will be that which will bear it the best, viz., the gold, which is malleable, lead-like.

The highest type of completed filling is that which is truest to

nature; that which will most minister to usefulness and comfort, and best prevent future decay. This means a thorough contour restoration, illustrated on the grinding surfaces of the teeth by close occlusion of the filling with its antagonizing tooth; illustrated on the approximal surfaces by close knuckling of the gold to its next door neighbor to prevent the crowding between the teeth of food, which destroys the inter-dental portion of the festoon of the gum, causing pain and inviting decay. The close knuckling also prevents an approaching movement of the teeth, which without the knuckling would in many cases meet each other at the margin of the gum, destroy it and invite decay by contact at that point. The accident most apt to befall this class of work is the entire breaking down of the gold, when improperly inserted, an accident preferable to the insidious lurking of decay behind the other class of fillings, imperfectly and loosely packed within weak retaining walls, when disastrous inroads of destruction warn the patient when it is too late, in most cases, to save the pulp or tooth.

The highest type of the dental arch completely repaired, durability and comfort being taken for granted, is that which is the truest to nature that the circumstances of the case will permit.

The highest type of gold is that which will do this work the best, the ease to the patient and operator being considered. An easy working cohesive foil is the desirable material.

The highest type of appliances to produce the result desired is that which will accomplish it the best, in the least time, with the least pain to the patient, and the least wear and tear and most profit to the operator. The hand mallet is good, but has two great objections that a mallet or plugger propelled by other force has not; it necessitates an assistant to use it, and it is slower in delivering blows. A plugger propelled by foot power does not give the operator the range of free action that one does that is operated by force independent of his exertions. The only attention that should be required is to start or stop the plugger at will, by a simple movement of the finger on the hand piece. A water power would be best if it were possible to get the plugger to cover the ground, but water power is something that not over one dentist in ten possesses for such use. The electro-magnetic plugger every dentist can have, the battery requiring about ten minutes' attention and ten cents expense per week, and when the battery and plugger

are once comprehended and are in good working order the dentist has an assistant that cannot be equaled.

Without it the operator cannot successfully compete with the operator who has it, all other things being equal. The gold works kindly under its influence, and is made as solid and strong at all points as is required. The patient objects to it less than to any other manner of inserting gold that I have ever known. The operator is delighted and infatuated with its easy, thorough, and rapid working.

Any system of filling is defective that does not condense its gold well, anchor its gold well, and have its weak margins of tooth well trimmed away.

The Herbst rotary method of inserting gold permits only one of these things. It does what the old hand pressure did, only in a different way. Its fillings are well anchored within the weak walls of the margins of the decay. The Herbst method necessitates a matrix in many or most approximal fillings, and this is a great objection because of the complication, the matrix being a very difficult thing to apply to the infinite variety of cases met with in practice.

That Herbst performs these operations skillfully and far better than the average of the dentists practicing about him, I do not doubt; but the attempts to demonstrate the superiority of the practice in this country have been lamentable failures. The rotary method of placing gold in teeth, I am happy to say as an American dentist, never would have had its birth in this land of ours, where dentistry was lifted from the gutter by our fathers, and where to-day it holds a pre-eminent position. I am willing to meet the inventor of the rotary method of packing gold, in a friendly trial of the comparative merits of his *modus operandi* with the plan of operation laid down as the correct thing in this paper. I will meet him in New York or Europe. I will operate with him in the mouth of a dentist who needs several days' work performed, he also to work in such a mouth. We will work together for several consecutive days before an audience of dentists, and let the audience see and believe, as their better judgment dictates; and if the gold building principles of Atkinson, Varney and Webb go to the wall, I am perfectly willing to go there with them, and Herbst shall triumph.

This adverse criticism of the Herbst method I make fearlessly, and I am willing to abide by the verdict that time will render. It will put many dentists struggling to attain good means to proper ends on their guard. There are many men lacking ability and knowledge to do as well as they wish, who are ever ready to grasp at every straw they see floating on the surface, instead of striking out manfully for something that will carry them safely to the harbor of success.

COHESIVE GOLD.

BY J. SMITH DODGE, JR., M. D., D. D. S.

The phrase "cohesive gold" contains a history, and without the history the phrase would be superfluous. It is as much a property of gold to be cohesive as to be yellow, only the yellowness has been always known, while the cohesiveness is a late discovery. The quality, therefore, intrinsic though it is, may be easily concealed, either by alloy or by superficial uncleanness, so that the very first demand for cohesive gold is that it should be pure within and without. The inward purity must depend on the manufacturer, but the dentist can himself secure a clean surface, and both are absolutely indispensable. I forget exactly what small percentage of alloy gold is said to bear without losing its cohesion. But I hope the manufacturers are not looking into this, for we want gold "1,000 fine," and nothing else. It should be understood that it is really this, and not any secret of concoction, that makes one preparation better than another. Some sort of ingenious jugglery may make a slightly alloyed gold cohere, but given a good honest article, as pure as chemistry can make it, and when the surface is clean, it *must* stick.

Nor do I believe there is as much in the form of preparation as is often supposed. It is certain that somebody has been able to make superior fillings with each kind of gold that has ever been popular; and it is equally certain that nobody has used them all with the same success. It appears, therefore, that the value of each depends rather on its finding a hand to which it is just suited, than on any intrinsic superiority of the gold, provided always it be pure. Still, there is a plain reason for the very general prefer-

ence given to foil over all other forms of cohesive gold. There is so much less surface to a given weight of gold that the labor of bringing all surfaces into contact is much less. Besides, it is no small part of success in filling to put just the right quantity of gold at a time under the plugger, and this is more easily and certainly done with foil than with anything else.

The question again of thick foil or thin is very much a matter of personal adaptation, but it is certain that anything can be done with thin foil which is possible with thick, while for many uses of thin foil thick foil is out of the question. Probably if a man were carefully forming his habits so as to get the best results with the least labor, he had better accustom himself to use thin foil for accuracy, and thick for speed.

The manufacturer having furnished the proper gold, the dentist should purify its surface. To be sure, one can buy cohesive foils ready for use, and many dentists are satisfied with them. But exposure to the air is sure to deposit moisture or whatever else on the surface, and a sufficient length of exposure will render any gold non-cohesive. Therefore, there is only one period at which the gold is equally cohesive, time after time, and that is just after it has been purified. But if my gold is less cohesive to-day than it was yesterday, it needs more force to make a solid filling, and so I must either vary my habits of working or send away fillings of different degrees of excellence. For these reasons I prefer to make ready my gold at no great time before it is used, and do not ask the manufacturer whether he is pleased to call it cohesive, or semi-cohesive, or non-cohesive. Let him make it pure and I will make it stick. It is a pity that this has come to be called annealing. It resembles that process to be sure, in its method, but the object is simply to cleanse the surface and not to make a molecular change in the metal. It is very usual to anneal the gold by passing each pellet or ribbon through the flame on its way to the cavity, but I believe this a faulty method. It cannot possibly secure a uniform degree of heat ; it may easily melt thin edges into lumps, and it spoils the temper of the instruments used. My plan, which I have followed with success for over twenty years, is to anneal all my gold at once, immediately, or not long, before using, on a pan of thin platinum, which is made as follows: a piece of platinum two and a

half inches square and in thickness No. 34, is turned up an eighth of an inch all round. A platinum wire, No. 15, is split at one end like Y and the angle soldered with gold to one corner of the pan, after which the wire is set tightly into a wooden handle, and the pan is complete. It is necessary to have as little thickness as possible at all parts of the pan, that it may heat easily. The gold (in pellets) is put into the pan and heated over a flame, and the right degree of heat is reached when the platinum becomes dull red. Of course it is not necessary to redden the whole pan at once, but all on which any gold lies should be in turn brought to this color. The gold is then turned out upon a plate of glass, and is so cohesive that a single pellet held in the forceps will pick up all the rest, like filings hanging from a magnet. Of course the pellets have to be separated before using, which is a slight task, and when it is done I can begin with gold enough before me to make a two hours' filling, all in the highest state of cohesiveness.

The pellets which I use are Williams' cylinders, ranging from No. $\frac{1}{4}$ to No. 2; but I attach no importance to the source of my gold, except that it be honestly pure and always the same, nor to the form except that it be convenient.

With such gold so prepared, the practiced hand can make fillings which, in their proper place, far excel all other dental restorations.

A METHOD OF CAPPING EXPOSED PULPS.

BY W. M. RAMSDELL, D. D. S., BROOKLYN, N. Y.

In the December (1884) number of the INDEPENDENT PRACTITIONER, "A. B. M." asks some dentist of experience to briefly describe the method he has found most successful in capping exposed pulps.

Inasmuch as this is a far-reaching subject, and one which involves a great variety of circumstances and considerations, I do not wish to be understood as attempting to give (under the above heading) specific rules to be applied to each and every case, as it comes to hand in daily practice. It is by continual modification of principles, and their intelligent adaptation to specific cases, that we reach the highest goal.

In treating exposed pulps, I find in my practice comparatively few cases where the pulp is really exposed to any considerable extent, or where by very careful and exact manipulation lacerating or wounding of the pulp may not be avoided, and it is to this class of cases principally that I apply the following mode of treatment, with which in a trial of several years I have had very general success.

After adjusting the rubber dam and carefully removing with a spoon excavator all extraneous matter, I proceed to dry the cavity as thoroughly as possible; if there is pain I touch lightly with creosote and oil of cloves. Then with an extremely sharp spoon excavator of the desired curve, I proceed very carefully to remove such portion of the super-imposed decalcified dentine as can safely be done without increasing (to any great extent) the exposure, working from the center toward the walls of the cavity, being careful not to "peel up" thick layers of decalcified dentine, but rather to shave off little by little from that portion which I desire to remove from the immediate proximity of the pulp, excavating more thoroughly as I approach the walls of the cavity. After the excavating is completed, I moisten a piece of court plaster, and with the point of a pen-knife remove enough of the plaster to cover the exposure and immediate adjacent parts, and apply while moist.

Now for the cap: I believe that in order to be in the broadest sense effectual, the cap must not only be made of a non-conducting and a non-irritating material, but it must also be so constructed and applied that it will protect the pulp from any pressure whatever, either from its own presence, from the pressure caused by the insertion of the filling material, or from the expansion of the material after its insertion.

A cap which I have found to essentially fill the above requirements may be made and applied in the following manner: take a piece of red cedar, such as we use in connection with pumice-stone for cleansing the teeth, and with a sharp pen-knife reduce one side near the end to a flat surface; then with the engine and a good-sized bur, bur out a saucer-shaped cavity or depression near the end of the stick large enough to cover the exposure and adjacent parts; then with the pen-knife trim it down from the back side until you have formed a miniature saucer, leaving a little neck con-

necting it with the stick; just before severing it from the stick, immerse it in a solution of gutta percha and chloroform, of the consistency of cream, giving it a flirt to remove the superfluous solution; after the chloroform has evaporated sever it from the stick, pick it up on the point of an excavator and put it in place. I sometimes touch the edges of the cap with a solution of Canada balsam and chloroform before carrying it to the cavity; it then sticks just where you put it. This done, I usually cover the cap and bottom of the cavity with a *thin* layer of Hill's stopping, and fill the remainder of the cavity with oxy-phosphate of zinc.

If, however, I consider the case of doubtful character, or wish to finish the filling with metal, I fill the cavity about half full of the phosphate of zinc and finish with Hill's stopping. I then leave the case until some future time.

These little caps may be filled with medicated paste, and used in treating exposed pulps in various conditions.

Some critics may say that the making of these caps would occupy too much valuable time. I make one in a minute and a half; to coat them with gutta-percha takes a little longer, especially if the solution is thin, and they have to be "dipped" two or three times; but all delay may be avoided by making them beforehand in assorted sizes.

A CHILD'S TEETH.

BY W. GEO. BEERS, L. D. S., MONTREAL.

For many years I have been specially interested in the study of the predisposing causes of caries in children's teeth. It is a subject we can never investigate sufficiently, until we stop guessing and are able with certainty to tell why *decay during growth* should confine itself to the teeth as a rule, and until we know what mother and child are to do in self-defence. I might repeat a good deal I have said elsewhere, but among a large record of cases faithfully examined, and whose family history I have endeavored to trace, I have selected one of the very worst cases I ever met, that of a young girl aged twelve years.

The following description will hardly speak for itself, as it does

not tell of the structural poverty, the thinness of enamel, the almost plaster of paris character of the very dentine.

In the superior teeth there are twenty-three fillings upon all the different surfaces of the teeth. Some of the cavities are of the most extensive character, involving nearly the whole of the crown. There is but one undecayed tooth, a cuspid, and this gives indications of approaching disease. In the inferior teeth there are fourteen fillings, with but four sound teeth, and these only comparatively so. Thus there are found in the twenty-eight teeth of this patient thirty-seven distinct cavities.

The mother of the child recently died, but from the father I obtained the following particulars : The mother did not suffer from any disease during pregnancy, except the ordinary attacks of nausea, so common at that time. These lasted almost six weeks, but did not cause as much suffering as during a former pregnancy. The mother's health was never very good. My little patient was quite free from the usual diseases of children until the winter of '78-'79, when she was seven and one-half years old. She then had scarlet fever. About three or four years ago she had measles. The parents have been very careful never to overtax her physical or mental strength, and everything that attention and care could accomplish for her was always done.

On her mother's side the family history of health is not good. The mother very nearly died of peritonitis when the first child was born. Seventeen months after, my patient was born, and the mother was able to nurse her, and was in the enjoyment of rather better health than she ever had before or since. The first child died in October (1871), after my patient's birth. Two other children died, each a few months old, one in 1873, the other in 1875. The mother died, after a prolonged illness, of asthma, last year. The grandmother on the mother's side was a confirmed invalid for a great many years. Her teeth were never good, owing, it was thought, to excessive doses of calomel, etc. The great-grandmother on the mother's side also suffered for many years from asthma, though she lived to old age. On the mother's father's side the antecedent's are good, and also on the side of the father.

Now, I think in tracing family history in this way we get to the only true—the embryonal—cause of the extraordinary condition of

my little patient's teeth. Through the blood of the mother the teeth of the child are influenced. The more I study cause and effect in this connection, the more impressed I am that we want a new departure in physiological science; the birth of a new branch of medicine and dentistry almost exclusively devoted to embryology, that will educate the public to confide in it, or be advised by it. The mere filling of carious cavities in children's teeth, or even the administration of easily assimilated phosphates, or the direction of proper diet, are all on the late side. Family history must be traced before pregnancy if possible, and the embryologist must tell us what is to be done to divert hereditary tendencies, and to improve the prospects of the coming embryo.

MIRABILE!

BY C. E. FRANCIS, D. D. S.

Judging from much that is stated at society gatherings, printed in dental journals, or expressed in social interviews, it might sometimes be inferred that our specialty is honored with a certain but limited number of much favored individuals, upon whom dame fortune has lavished the most precious gifts from her store of coveted treasures. They seem born to luck—their star being ever in the ascendency—and a glow of infallibility is visibly and indelibly stamped o'er their unruffled brows. In their professional career all is as serene as a summer sky, and one's soul is nearly choked with envy as he reads or listens to recitals of brilliant achievements or incomparable successes. In the treatment of all cases that come within the range of their specialty they meet with wonderful results. Under the influence of their skill gold is manipulated with the most implicit obedience, and despite all adverse circumstances teeth loaded with the precious metal will withstand the ravages of all time. Their fillings of amalgam or tin are of like permanency. In the treatment of root canals they will penetrate the most tortuous and infinitesimal channels, and remove every atom of their contents. Their peculiar instruments search the very verge of the apical foramina but never pass a line beyond its limit, and fillings are carried thither so easily, so snugly, so nicely, and with such

charming results that one can hardly help wishing that all his root cases could be transferred to their care. They can save pulps or fragments of pulps in all cases, and insure what there is left of them from any future trouble. They glory in cases of alveolar abscess, which invariably yields to their marvelous treatment. Pyorrhœa alveolaris succumbs to their magic touch, and teeth so loose as to wabble at every movement of the tongue are securely "pocketed" until they become as firm as a rock of granite. Cases of irregularity and artificial dentures give them no trouble; indeed, success is the crowning result of all their efforts.

What a pity that all of us could not be so highly favored.

THE DENTAL ENCYCLOPÆDIA.

PUBLISHED BY REQUEST OF THE SOCIETIES.

To the Members of the Seventh and Eighth District Dental Societies of the State of New York:

GENTLEMEN,

You did me the honor, in October, 1875, at your joint meeting in Buffalo, to invite me, by resolution of Dr. Line, to elaborate a paper on the need of a Dental Cyclopædia, and read it before the State Society at its next meeting, May, 1876. I did so.

Many of you, probably, read the report of the committee appointed to investigate and report on the subject in May, 1877, in the *Transactions* published in 1878, two years after. It is not my purpose to write of what was doing for the Encyclopædia from the time that report was read till a corrected proof of my paper was published in the May number, 1878, of the *Oral Science Magazine.* But it became very clear to the writer, as well as to others, who encouraged the project long before that report was published, that to ask any society to assume the pecuniary responsibility in publishing such a work was absurd; but the idea that a great society might sanction and foster such a project seemed reasonable and possible.

But that was not seriously attempted, for it happened that in July, 1878, Dr. Buck, editor of the English edition of Ziemmssen's Encyclopædia of Medicine, was shown a copy of my article on the *Dental Cyclopædia,* by a medical friend of his. Dr. Buck was so

well pleased with the project that he was at some pains next morning to talk with Wm. Wood, of the publishing house of Wm. Wood & Co., of New York City, about it, with the following effect:

"NEW YORK, July 9, 1878.

"B. R. MCGREGOR,

"*Dear Sir:*—Dr. Buck has spoken to us in regard to a plan of yours for a Cyclopædia of Dentistry. While we should hesitate to undertake any very heavy work just now, we should be glad to have your views concerning it at your leisure—number of vols? pages? authors? possible number of subscribers? etc.

"Very respectfully yours,

"WM. WOOD, & CO."

Mr. Wood was informed next day, in the concurrent words of those agitating the subject, that as soon as approximations of answers to his questions could be given, they would be made.

Here was a publishing capitalist, whose concern had just made $75,000 from publishing the English edition of Ziemmssen's Medical Encyclopædia, voluntarily offering to consider the subject of a Dental Encyclopædia, if it could be put into an intelligible form, and willing to put his capital into it and produce it, if he could but know what it was to be, etc.

The projectors of the work instantly set themselves with redoubled energy to develop, in the first place, a plan of the work. That was so far effected within a year as to be easily made presentable to Mr. Wood, and it would have more than answered his questions, (except that about the probable number of subscribers) but for obstacles that were not, if they could have been, overcome.

The writer well knows that the Odontological Society of New York would not commit itself to auspicate the work. Then there was a singular apathy and indifference to the project among dentists generally. He was constantly reminded of the caution he had received in a letter from the editor of the *Dental Cosmos*, months before, to expect nothing but failure in trying to interest the profession in it, and the words of others indicating that the profession was not ready for such a work. This is easily explained.

The people of England were not without cyclopædias before the first really successful one was produced by Chambers, in 1728. That work, however, was the supply of an unmistakable demand; and

we know that it created new wants, since larger and better works followed from that time till now.

No, gentlemen, the project of the Dental Encyclopædia at that time was a mistake—worse, a blunder. It could not help but fail, and it did fail.

In a long and checkered career I have always received your unswerving kindness—often I have not deserved it;—certainly I have reason to thank you, gentlemen, and think you will believe me when I say that I part from you regretfully, but retain my interest in the profession, even more than before.

Very respectfully yours,

RUSH McGREGOR.

Reports of Society Meetings.

AMERICAN DENTAL SOCIETY OF EUROPE.

MEETING AT VEVEY, SWITZERLAND, AUG. 26, 27 AND 28, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY DR. W. ST. GEO. ELLIOTT, OF LONDON.

(Concluded from page 692, Vol. V.)

A paper upon "Amalgams" was read by Dr. W. St. Geo. Elliott, (see page 62.)

Dr. Bodecker, (New York)—The thanks of the Society are due to Dr. Elliott for these exhaustive experiments. At a recent meeting of the New York Odontological Society, Dr. J. Smith Dodge read a paper on the tendency of amalgams to assume the spheroidal form. This tendency may account for some of the peculiar changes noticed by Dr. Elliott.

Dr. Miller, (Berlin)—I have seen many hundreds of copper amalgam fillings, and I have yet to find the first one which shows a tendency to draw away from the walls of the cavity or to assume a spheroidal shape. I doubt if the spheroidal tendency can be present in all amalgams.

A paper by Dr. de Trey (Vevey), entitled "Advice to Parents, etc.," was then read.

Dr. Du Bouchet, (Paris)—I have been in the habit of giving phosphate of lime to children to improve the character of their teeth. I would like to know the experience of others in this matter.

Dr. Sachs, (Breslau)—I have known parents to give lime water, and I have done so myself with very excellent results.

Dr. Edwards, (Madrid)—I have had some experience with the lacto-phosphate of lime. I ordered it for my wife early in gestation for the benefit of the fœtus, but I must say the results are deplorable. The child, now eight years old, has wretched teeth.

Dr. Elliott, (London)—My third son was brought up on condensed milk, and at four years of age his daily consumption was a tin of one pound. At that time, fearing some contraction in the throat by the exclusive use of fluid food, and because his teeth were all decaying away, I determined to force him to take more solid food, an attempt we had often made before without success. In this case it took the child four hours to swallow a small piece of bread. In the course of a week he could take solid food in small quantities, and was put upon an oatmeal diet. The decay in his teeth was at once arrested, and eleven years after he still had some of these temporary teeth. Something has been said of the injurious effects of sugar upon the teeth. It certainly neither accords with my experience nor observation. My family and myself are large consumers of sugar, and we all have remarkably good teeth.

Dr. Miller—Sugar when brought into contact with saliva may be converted into lactic acid, which, as you know, is very injurious to the teeth; practically, however, it is not as bad as might be supposed, since being in solution it is readily removed from the mouth by the oral secretions. Investigators have not fairly settled the question whether phosphates, etc., should be given. The effects upon bone were the same, whether more or less was taken. Only a definite quantity would be assimilated. It would be useless to give phosphates where the fault was in the assimilation; when, however, there is a simple lack of bone-forming material, then phosphates may be given with good result.

Dr. Williams, (Geneva)—Prof. Watt has written much on the subject, and through his influence, when associated with him in business, I gave my wife phosphates, the only result being that the teeth of the child came in rather early. Between the teeth of this child

and those of another without such treatment there was no apparent difference.

Dr. Terry, (Milan)—My wife, during our stay at San Remo, lived mostly on fish, and the teeth and health of the child were excellent. As regards sugar, I think it injurious only when taken to excess.

Dr. Gregory—Mastication is my great hobby. People do not masticate enough, and suffer in consequence. I also always insist upon children sleeping with their mouths shut.

Dr. de Trey—I have noticed how injurious grapes are to the teeth. Many people come here for the grape cure, and I always find the teeth badly injured, mainly through excessive use of the remedy.

Dr. Terry—My experience with the grape cure agrees with that of Dr. de Trey; the patients overdo it. I had a case in which the enamel could almost be removed by the finger, not from the grape cure, for none were used, but from the water (medicinal) of the place. I think that the erosion we see is often the result of the tooth-brush.

Dr. Elliott—It is a mistake to suppose true erosion is ever caused by the tooth-brush. You know my practice is mainly among English people, and if there is one feature I have noticed more than another, it is the lack of care on the part of the patient. The people as a nation do not keep their teeth as clean as they ought to do. A large part of my time is taken up in showing them the necessity of greater care, and giving them proper directions in the use of the tooth-brush. Now I am perfectly convinced from one physical fact that erosion is not caused by the tooth-brush. It has always, or nearly so, a sharp, well defined edge. I defy any one to make a sharp edge with the brush. The edge would always be cut off; always rounded.

Dr. Terry—Dr. Elliott did not understand me; I only meant that injudicious use of the brush might injure the enamel; the brush should always be rotated from the gums.

Dr. Bodecker—As in a few minutes we are to have a clinic, and as I am to illustrate the Herbst method of operating, I will take this opportunity of explaining the process. One year ago I received a pamphlet from the Society of German Dentists at Frankfort, describing a process of burnishing foil into cavities with the engine. I saw some samples of the work, and I was amazed. I took the opportunity when in Bremen of calling on Mr. Herbst, and spent

some days with him. He gave me all the information possible, and, gentlemen, I believe it is a process of value, particularly for approximal cavities. I think the gold used (that of Wolrab, of Bremen,) is too soft for either contour or crown cavities. Herbst had no experience in contouring, and asked my assistance. I prepared some cavities for him, and he filled them, and you will notice them among the specimens shown here; but either the gold is too soft, or the instrument does not fully condense it, as you can readily detect. In a competition trial with Dr. Herbst, he filled a cavity by his process in one-third the time it took me to fill a similar one with the Bonwill mallet, but my plug weighed more. The cases that we find most difficult by other modes, as the distal surfaces of molars, are the easiest by the Herbst method; but in all cases this method requires a simple cavity; if an approximal one it must be made simple by a matrix fixed solidly in position.

Dr. Chamberlain, (Rome)—Is the gold cohesive?

Dr. Bodecker—Yes, very cohesive.

The meeting then adjourned to Dr. de Trey's office, where Dr. Bodecker demonstrated on a patient the Herbst method in the distal cavity of a bicuspid.

Dr. Bodecker—We always use in commencing, a large point and plenty of gold; two or three large cylinders. After they have been condensed another layer is added, and so on. I do not feel sufficient confidence in myself with this new process to fill the crown, so I do that part of the operation in the usual manner.

THURSDAY MORNING.

Dr. Rosenthal, (Liege)—Presented through the president a new wide-mouthed bottle for holding gold foil. The peculiarity consisted in the glass stopper, which was hollow and contained chloride of calcium, or quick lime, covered with kid, the object being to absorb all moisture.

The president then called upon Dr. Elliott to read his report on Operative Dentistry.

Dr. Elliott—I can easily see how a paper of this kind could be made most interesting and instructive, and I think it would be a good idea if such a paper were produced every year. It should contain the gist of all the accessible professional literature of the day, both as to new books published and the magazines of all languages.

To write a paper of this kind would require much time, and while this is my idea of what the report should be, in point of fact I have not had the time to accomplish the work.

He then read some brief notes, criticising here and there, and asking for the views of those present on each subject. This led to an interesting discussion, of which we have no report.

Dr. Elliott—I am sorry to stop so interesting a subject, but in conclusion I am anxious to mention some experiments I have made on the subject. Believing, as I do, from much observation and many experiments, that with cohesive gold the best and most useful work we can do will be found to be the most dense in character, I have had an iron matrix made composed of two pieces, capable of being separated. The cavity was drilled out between those two parts, having a pit at the bottom to serve as a starting point. This cavity was filled in seven different ways. Each plug was then removed, weighed, and the specific gravity taken, with the results as shown below:

Salmon Auto-plugger.	1 Flat Foil.	8 thicknesses of Kearsing's No. 4 cohesive, $\frac{1}{8}$ in. wide, annealed in advance: 9 sheets. Time 2 hours 10 minutes. Spec. Grav. 18.583+
	2 Pellets.	$\frac{1}{4}$ sheet rope cut in 8 pellets: $8\frac{1}{4}$ sheets. Time 2.24. Spec. Grav. 18.485+
	3 Crystal Gold,	Time 1.47, Spec. Grav. 17.327+
	4 Hand Pressure,	Foil same as No. 2. Time 1.30. Spec. Grav. 13.7307.
	5 Bonwill Mallet,	" " " " 1.8 sh. T. 1.8. " " 15.172.
	6 Herbst Method,	" " " " 1. sh. T. 1.55." " 11.560+
	7 Electric Mallet,	" " " " 1.8 sh. T. 1.30." " 15.747.

You will see by this that in point of density the one made with the automatic and flat gold is the best, and in time the operations stand in the following order:

1, Bonwill Mallet; 2, Automatic Mallet with Crystal Gold; 3, Electric Mallet and Hand Pressure; 4, Herbst Method; 5, Automatic Mallet with Flat Gold; 6, Automatic Mallet with Pellets.

While in density they are as follows:

No. 1, 2, 3, 7, 5, 4, 6.

You know, gentlemen, our first desire is to do good work. Secondly, we wish to do it with as little discomfort to the patient as possible. We know that hand pressure is the most agreeable, and also that hand work can be made as good as any, but it is slower and much harder for the dentist, an important consideration when

his physical strength is tried to the utmost by the exactions of a large practice. Often we cannot give the time that is necessary if we rely upon hand pressure (of course, I allude only to cohesive gold), consequently we must use something that will strike faster to enable us to cover the whole surface as rapidly as possible. This is, perhaps, fairly met by the several mechanical mallets now in the market—as the Bonwill, the Power, and others; perhaps most fully by the electric. Penetration does not necessarily mean efficiency. I hold in my hand a pad (2×3), composed of sheets of writing paper. On it are the footprints of the several mallets experimented with. I took a pointed plugger and the mallet I used in practice (lead, with a soft and a hard wooden face), and made a row of holes with each face, my assistant malleting with the same force as applied at the chair. I then used the automatic with the same force used in introducing the experimental fillings; then hand pressure; then the electric. The comparative penetration is shown by the number of sheets pierced, and the force applied was measured by a registering balance. In penetration the order was as follows, with the pressure in lbs., in the next column:

		Penetration Sheets.	Pressure in lbs.
3¾ oz.	Mallet, soft face, wood	3	2
	" hard face, wood	3	2
6 oz.	" lead face	5	3
	" leather face	4	2
	Hand pressure, light	11	8
	" " heavy	15	12
	Electric pressure	4	2
	Salmon automatic plugger	8	6

It was a surprise to me to find that hand pressure gave the greatest penetration. My explanation is that the excellent work of the electric is not so much dependent upon the force of the blow, as upon its evenness and rapidity. This is in a measure corroborated by the results from the most regular of all blows, the automatic, necessarily regular by its construction; of course, we cannot forget at the same time that its weakness is in its slowness; evenness of condensation can only result from giving it care and time.

The President—As there is no time for discussion, I will call upon Dr. Elliott to read his paper on Porcelain Crowns.

Dr. Elliott—Mr. President and gentlemen, some five years ago I read a paper before this Society on the same subject, illustrated by

some sixteen drawings, embracing all that I could find out on the subject at that date. Since then Dr. Dexter, of New York, has published in the *Dental Cosmos* very much the same thing. Dr. Butner has also published a paper. I do not claim to bring before you anything particularly new, but to call your attention to the vast amount of ingenuity that has been developed in this department, and in that way to prevent you from bringing before the profession, supposing them to be new, plans already tried and abandoned. To make the subject plain to you, and to enable us to get over a large amount of matter in a short time, I have made over sixty drawings, 2×3 feet in size, and colored so that you can see at a glance each peculiar feature. No attempt has been made to take them chronologically, the only arrangement being from the simple to the more complex.

It is impossible in this report to take up the subject in detail, and the drawings were so numerous that it is impracticable to reproduce them. The reading of the paper, or rather the necessary description and criticism attending the exhibition, lasted over an hour, and was listened to attentively by the society.

Dr. Elliott—I have made some experiments which may prove useful in testing the comparative stiffness of a number of metals used in making screws, pins, etc., for pivoting.

Annealed.	Unannealed.		
Lbs.	Lbs.	A PULL OF	
4½	4½	Bent to an angle of 45°	Platinum.
"	"	" " "	Phosphor Bronze.
"	"	" " "	Aluminum.
3	5	" " "	Dental Alloy.
2½	5½	" " "	Delta Metal.
2½	6	" " "	German Silver.
4	7	" " "	Hard Platinum.
"	8½	" " "	Steel.

Wire No. 52 (Stubb's Wire Gauge), ¾ inch long, was used.

TABLE TO SHOW THE COMPARATIVE VALUE OF CEMENTS IN PIVOTING.

When the pin was packed with

	Lbs.
Red Gutta-Percha it pulled out at	9
Oliver's " " "	10½
Fossiline " "	100
Standard Amalgam firm at	150
Sullivan's " "	160
Rock Cement "	170

Wire No. 51 (Stubb's Wire Gauge) Screw, 44 threads to the inch, was used.

The second experiment was made to show the firmness with which pins are held by different kinds of cement. A piece of iron one-half inch wide, three inches long, and one-fourth inch thick, had one-fourth inch holes drilled in a line, and each hole tapped; in the center of each, a pin with eye attached was retained by cement, and after an interval of twenty-four hours the force required to extract

the pin was taken by a registering balance, and is shown in the table.

Of course we get a better result in an experiment of this kind than we can hope for in the mouth, but it shows that the ordinary practice of using oxy-chlorides and oxy-phosphates for supporting the pin is correct, making the necessary provision for the exclusion of moisture.

Dr. Miller—We must not accept these experiments as a positive guide as to the comparative value of different materials, as the conditions are not the same. A pin in a pivot tooth is not subjected to a pull, but to lateral motion, and the cement is liable to become disintegrated on the surface.

Dr. Elliott—True, but the surface should always be of something other than the white cements. Amalgam or gold should be used. This will prevent the solution, as well as disintegration. The elasticity of gutta-percha is a more theoretical than real advantage; certainly that crown which is most rigid will be most durable. Gutta-percha may last indefinitely where there is but little work for the crown to do, but where there is, the more solid it is the better.

LAST SESSION.

Dr. Bodecker—You know, gentlemen, that an effort has been made to raise a fund for the family of the late Dr. Webb; I am sorry to say that fund has reached but a small figure. It would be a good thing if this society were to contribute something; it would be a good example to those at home.

Dr. Sachs—I move that the sum of five hundred francs be sent by this society to the family of the late Dr. Webb.

Dr. Elliott—I second the motion.

The motion was put and carried unanimously.

The improper graduation of students by American colleges was then brought up, through the reading of a paper upon the subject, and it called out a very animated discussion. At the meeting of the society at Cologne, a committee, consisting of Dr. Williams, Dr. Cohen, and Dr. de Trey, was appointed to take the subject into consideration. But it was stated that the rascally business was still going on, and the society desired to take some measures to stop it. Europe was being flooded by unearned diplomas, coming too from legally established and hitherto respectable colleges. Our consuls

had been appealed to, but they were powerless in the matter. It was proposed to go directly to the governments of Europe for help, and different gentlemen expressed a willingness to take hold of the matter. Statistics and particulars of flagrant cases had been collected, in which persons unacquainted with the English language had been graduated after a few months' attendance upon lectures which they could not understand. It was proposed that these be published, with the names of the colleges from which they obtained diplomas, but it was finally decided to await the results of a movement inaugurated in America, and to sustain any action that promised good results there. The INDEPENDENT PRACTITIONER was frequently referred to, and its action upon this subject highly commended. Berlin was designated as the next place of meeting, and the following officers were elected:

President—Prof. Dr. W. D. Miller, Berlin, Germany.
Vice-President—Dr. H. C. Edwards, Madrid, Spain.
Secretary—Dr. F. Foerster, Berlin, Germany.
Treasurer—Dr. E. de Trey, Vevey, Switzerland.
The society then adjourned.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

REGULAR MONTHLY MEETING HELD AT THE RESIDENCE OF DR. F. C. BARLOW, JERSEY CITY.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

President Barlow in the chair.

After the usual routine business had been accomplished, Dr. E. Parmly Brown read a paper, entitled "The Standard of Work on the Natural Teeth that the Dentist of the Future Must be Equal to." (See page 66.)

Dr. W. H. Atkinson—The ideal future filling is over twenty-five years old in pronouncement. It is a filling of any non-conducting substance, that shall restore the natural contour of the tooth so nearly as to meet the requirements of the artistic type presented in the paper. Then the edges are to be treated precisely as the paper directs, by cutting away just enough of the tooth substance to admit sufficient hold to afford the required strength to the tooth; the gold

is then to be built around so as to have a complete shell that shall represent the contour of the tooth, plus enough to admit of finishing, which requires the use of a wedge for separating the teeth a little more than they will be apart when finished; just enough more to admit of the perfect finishing of the knuckle. One thing that I admire very much is knuckling. All of you who are anatomists will see that that is simply following nature. That is the ideal filling. To fully explain how to do that would lead me into too much discursive discussion. You may do it in any way that will accomplish the result that is indicated in the paper. Remember this, that the welding of gold is the annihilating of the spaces between its particles, and it may be done either by the former hand-pressure, or the various kinds of mallets; it does not make a bit of difference where it comes from, if only you get the right impact to make the gold solid.

Dr. C. S. Stockton—I do not often like to differ with my friend Dr. Atkinson, and I do not know that I do so now. I believe, as he does, that we should not expect or require a pony to carry more than it can. But there is a great deal of truth in what Dr. Brown has said in regard to the implements to be used, notwithstanding what Dr. Atkinson said with respect to instruments and their impact. There are teeth on which you cannot use a heavy lead mallet, that you can fill and save with the electric mallet, or with what I consider a better instrument, the Bonwill mallet, and that is always ready. It makes as good a blow as the electric mallet, and I think a better one. You can work around thin walls with that instrument, and make a perfect filling that will support and preserve the tooth; and you can hardly do that with the four hundred pounds' weight that you put on your pony.

Dr. Atkinson—Four hundred pounds or an ounce makes no difference; you can strike just as easy and light a blow with one as with the other. It is all flummery to talk about the impact of a hammer being necessarily heavy. I have seen a machinist have such perfect control of a trip-hammer that weighed a ton, that he would just crack the shell of an egg with it, not breaking it.

Dr. Stockton—That is true, because the machinery does it, and you can control it; but in using a heavy hand mallet your assistant does not know how frail the walls of the tooth are, nor just how to adapt the weight of the blow to the necessities of the case, and it is

not all flummery to say that the blow is likely to be too heavy. I claim that with an instrument that strikes a light blow one can build better than with an instrument that strikes a heavy one. If you have a strong foundation it does not make so much difference what mallet you use, or how heavy a blow you strike; but there are teeth that come into your hands upon which you cannot use any such instrument with safety to the tooth or comfort to the patient. So it is necessary that a little discrimination be behind the trip-hammer. With the electric mallet trip-hammer, or the Bonwill, you can check the impact and take the hammer away. But you should use that which your judgment tells you is the best.

I wish I knew something about this Herbst method, aside from reading. I have read thoroughly what Dr. Bödecker has written respecting it, and from that theoretical knowledge I agree with Dr. Brown, in that I do not think it is practicable. There is too much flummery about it. I think the making of a matrix, where the approximal teeth are out, would be difficult. I do not believe that method will ever be practiced to any extent in this country. I have examined some of the fillings that have been made by Dr. Bödecker, and they look well, but I do not believe the Herbst method will ever become the settled practice of this country. A great deal depends upon the gold used. I understand the German gold is very soft, and works better than our own.

There is a great deal in time saving. If I applied the rubber dam as frequently as some dentists do, the receipts of my practice would be cut off one-third. I fill a great many teeth without applying the rubber dam; I can almost fill the tooth in the time that some dentists use in applying the rubber dam to it. It is one of the most valuable appliances we have in dentistry, and I bless the man who invented and brought it to our notice, but it is used too exclusively by many practitioners. By avoiding its use you not only gain time, but promote the comfort of the patient. A great many patients get tired of the rubber dam; they do not like to be gagged and have their mouths kept open and their tongues useless for hours at a time. Therefore I do not use it when I can do without it. I know I have been successful in a great many cases without its use, yet no one has a higher appreciation of that ingenious appliance than myself.

Dr. Atkinson—The Herbst method is not fairly before us yet, and we are going off at half-cock in discussing its merits until we shall

have seen more of it than we have seen. I have been asked about it a great many times, and I have said I had no opinion to express. It is but a baby yet. I can speculate, probably, as well as most men, but I do not think it is fair for us to speak of a thing of which we know almost nothing, with the same degree of decisive assertion that we do of those things that we do know about.

Dr. S. C. G. Watkins—I am sorry that there is not some person here who is well posted in regard to the Herbst system, for I would like to see the other side of the case presented. Such a defense of the method might bring out points that will not now be broached. I know very little about it myself. I had a tooth filled in New York last winter, the filling being begun with the Bonwill mallet, which was changed for a small hand mallet; and I think the pain and discomfort caused by the blows of that little hand mallet were about the worst I ever suffered in my life. The hand mallet was changed for the automatic mallet, and the filling was finally completed with what might, I suppose, be called the Herbst method; a small blood-stone, revolving in a dental engine, being used to pack the gold. The gold appeared to cohere perfectly, and made a solid and beautiful filling. But that lead mallet! As I think of it now that tooth pains me! The burnishing part of the operation, or the Herbst method, was not at all disagreeable. It had a nice, pleasant feeling, and the next tooth I have filled will be filled by the Herbst method. I think it brings less strain upon the tooth than any other method of packing gold. With regard to solidity or density, I do not think it is necessary to have a filling as thoroughly condensed all through, from beginning to end, as Dr. Brown has stated in his paper; and I think the Herbst method would be admirably adapted to the filling of teeth that would not bear the force necessary to be applied by the old methods.

With regard to applying the matrix, and the difficulty spoken of by Dr. Stockton, I do not think it is necessary to restrict one's self to any particular style of matrix. A matrix can be quickly made of a strip of thin copper tied to the tooth with floss silk; and it does not make any difference whether the tooth stands alone or in an entire arch. Such a matrix can be applied in a few minutes. No great degree of skill is required to do it, and I think it would have a great advantage over the steel matrix described by Dr. Bödecker.

Respecting Dr. Stockton's statement that a great deal of time is

wasted in applying the rubber dam, I beg to differ with him. I use the rubber dam more and more every day, and I think it saves time instead of wasting it. I can usually put a rubber dam on a molar tooth as quickly as I can fold and put in a napkin, and I know my filling will be better if I use the rubber dam than it is possible for it to be without it. I believe if dentists would use the rubber dam more, and get more accustomed to its use, they would almost entirely abandon napkins.

Dr. E. Parmly Brown—The making of a matrix for the purpose of putting a gold filling into a natural tooth will, I think, never be the general practice. In looking back over the history of dentistry, I know of no operator who has attained excellence and made a reputation who practiced the using of matrices in building up teeth with gold.

Dr. Atkinson—Dr. Louis Jack has been doing it for twenty years or more.

Dr. Brown—If he has been doing that in this country for a quarter of a century, and I did not find it out, it is very funny; and if he invented such a valuable matrix twenty years ago, and the profession are not using it to-day, it is very funny that so good a thing has been so long in being found out.

Dr. B. F. Luckey—I believe there are a great many ways of doing some things. If we want density, and have the time to get it, the electric mallet is, *par excellence*, the thing to use. It is a great favorite of mine; but that we should use it in all operations, whether approximal or large crown cavities, I do not believe is good or profitable practice; it takes too much time. We all know that equal density throughout all parts of the filling is not necessary in all fillings. There are thousands of fillings that were put in twenty or thirty years ago that are not of equal density throughout, and yet they saved the teeth. We can do the same thing in dense teeth to-day. If we are going to build up and contour a large filling in a weak tooth, we must take time and use instruments that will give us the greatest density in the filling. In that I agree with Dr. Brown. That the electric mallet is the most pleasant to the patient I have not found. I have used it for a number of years, in conjunction with various other mallets, and I have found that it is most disagreeable; the patients object to it more than they do to the hand mallet, or the Bonwill mallet, or the automatic mallet. I simply

desire to place myself on record as opposed to the idea that we should use but one method. I like to see thorough work, and I like Dr. Brown's idea of what thorough work is, but I do not admit that there is only one way of doing it.

Dr. Brown—Dr. Luckey errs in assuming that I advocate doing things in one way only. I claim that there are certain features in the electric mallet which, in my experience, are advantageous. He says the electric mallet is not pleasant. I must not judge by his experience, but by my own. I have witnessed Dr. Webb's use of the electric mallet, and many patients made a great objection to the pain or unpleasant feeling produced by it. But Dr. Webb used it much stronger than was necessary, and with too rigid a plugger. The pluggers I use now are elastic spring pluggers. In nearly four years' use of the electric mallet I can only think of one patient who made the slightest objection to the force of its blow. I am using it every day, almost continuously from morning to night, six days in the week, upon the teeth of little children, middle-age and old people, and delicate, sensitive ladies, and they do not make any objection to it. A dentist who would continue to use an instrument that his patients made serious objections to, would do a foolish thing.

Dr. G. S. Meigs—Some years ago I put in a very large filling in an inferior molar for Dr. William C. McFarlan, and it was reported by the clinic committee that the patient went to sleep while the operation was being performed at the clinic. I recently filled a tooth for a Wall-street gentleman, who made a great deal of fuss about the pain. Afterwards he insisted on my building down a large cuspid, and I told him I would not do it unless I used the mallet. I went to work, and, to my surprise, he slept all through the operation.

Dr. Brown—I have a patient, a lady, who has a cleft palate and hare lip. The osseous structure of the superior maxilla is divided at about the median line, into two distinct parts. Some attempts have been made to remedy the trouble, and an artificial palate has been inserted. She has abandoned all these contrivances, and I propose to make a sort of compromise. The left upper central incisor is absent; it was omitted, as well as the bone of the maxilla, in the development, and the other central, which is forward of the lateral, is dead and very black, giving her a bad expression. To regulate these teeth would be a very difficult matter, and if it were done the black central would be unsightly. I wish to know

whether it would be safe to extract the two teeth that border on the place of the lost bone. I spoke to a physician about it, and his opinion was that there would be no danger. The appearance of the lady would be very much improved by the removal of the two teeth that are exposed by the hare lip. The missing tooth has been replaced by one on an artificial plate, and if I can with safety take out the two others, the lady's appearance would be very much improved, by substituting three artificial teeth upon the plate. The bone of the superior maxilla is entirely separated, and you can move either side without moving the other.

Dr. Atkinson—Remove the teeth by holding firmly the side of the maxilla they are in, giving the forceps a wringing or rotary motion.

Dr. C. A. Timme—I have recently used the Herbst method of packing gold. I tried it a year ago, and at that time it did not work satisfactorily, but since Dr. Bodecker returned from Europe, last summer, I have used some of Wolrab's German gold, which is very soft and pure, and I find it works much better. I think the success of the method is due to the quality of the gold, more than to anything else. We have never had pure gold here, in my opinion. I think an agate-point instrument would work better than steel. I polish that kind of fillings with an agate stone. This method has not been used long enough to determine how the fillings will wear.

Dr. Luckey—Within the last month or two there has been a great deal of commotion in the medical world over the discovery of a new anæsthetic, the hydrochlorate of cocaine. It has been used in several ophthalmic operations, and it is claimed to be a perfect local anæsthetic in all operations upon mucous surfaces, especially of the eye. I was fortunate enough to obtain half an ounce of the two per cent. solution, thinking it might prove to dentists what they have for years been looking for, something that would, by acting as a local anæsthetic, enable us to prepare cavities in sensitive teeth without pain. I used this cocaine in every way I could think of, dry and wet, with and without a rubber dam, hot and cold; and so far, with this weak solution, I have had no success whatever. Dr. Atkinson tells me to-night that he has had success with a four per cent. solution on very sensitive teeth. I would like to excite the interest or curiosity of the members of this society

enough to induce them to investigate the matter, each one for himself, to find if there is any method by which this preparation can be used so as to bring about the results in every case that we would like to have, and that it is claimed this agent will produce.

The ophthalmic surgeons are very jubilant over the success of this anæsthetic in their specialty. They have performed a number of operations upon the eye with perfect ease and without the slightest pain, and without making the patient unconscious. It is also claimed that other painless operations have been performed by its aid. There was an operation performed with it last week in the mouth, either upon the tongue or the inside of the cheek, and there have been operations in the vagina, all without pain. If these things are true, it seems to me that there is something in it for us. It would be a grand thing for us if we could, by the use of such a simple and harmless local anæsthetic as this is said to be, be enabled to prepare cavities painlessly; and, therefore, I bring the subject up, in the hope that each one of you may investigate and experiment with it, and we shall then soon discover what value there is for us in this preparation.

Dr. Watkins—Dr. Carr reported, before the First District Society in New York last week, that he had tried this anæsthetic in a great many cases, and in every case it was a perfect success. He used the four per cent. solution. He had been able to touch a nerve, I believe, without causing any pain, and he believed that after a while we will be able to extract nerves painlessly by the use of this anæsthetic. At the same meeting Dr. Woodward stated that he had used the two per cent. solution in a number of cases with no effect.

A motion to pass the subject was carried, and the meeting adjourned.

CHICAGO DENTAL SOCIETY.

JANUARY MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY A. E. BALDWIN, M. D.

The paper of the evening was by Dr. G. W. Nichols, and his subject was "Eclecticism as Applied to the Practice of Dentistry."

He said that following the able and truly "eclectic" paper presented at the last meeting by Dr. Talbot, it would seem almost

superfluous for him to say much upon the subject. He defined eclecticism strictly as a method which, without having any fixed principles within itself, forms such by gathering, selecting, rejecting or combining, out of all other methods, that which will best subserve the demands of the case under consideration. The physician or dentist should meet his patient unbiased by "ism" or "pathy," and should consequently diagnose according to the history and condition of the case, and treat entirely in accordance with such condition. In brief, then, the subject of this paper means practicing dentistry solely in accordance with the indications in each and every case. From this view of the subject it has more to do with the mental condition of the dentist than with the action of medicaments, for a mistaken, narrow-minded, non-ethical treatment is of little avail. Each should be careful to know that his "light" is not "darkness." Man's best inheritance is spiritual and mental freedom. The training from childhood should be how best to utilize one's own powers; to acquire the habit of close, analytical observation; to educate more by drawing out than by absorbing the ideas of others. The majority get facts entirely by adoption; too often they are satisfied if they know what so-and-so thinks or does under like circumstances. Such men are not, neither can they be, eclectic.

The next great hindrance to attaining this perfection is egotism. Every man proceeds upon the idea that his methods and practices, or those taught to him, must, as a matter of course, be correct, and that all others are unworthy even a fair investigation. Especially is this true of egotistical teachers, who inculcate theories more or less false and unimportant, as ideas of great moment. He instanced the following: The practice of placing creosote on cotton in root canals, supposing that the contained septic matter would thus be rendered innocuous; capping putrescent pulps; drastic cathartics in inflammations of mucous tracts; replantation or transplantation of diseased teeth; the extensive cutting away of tooth structure for easy access to cavities, without subsequent restoration of contour; the use of cohesive foil in approximal surfaces of chalky teeth, or as an exclusive filling material; the total condemnation of grooves or retaining pits; filling sensitive teeth with metals without first relieving that condition; the use of hopelessly diseased roots for the support of artificial substitutes; the extraction of sound teeth on any pretext; non-removal of deposit upon roots; above all, the sin-

ful and culpable silence of practitioners regarding hygienic observations on the part of their patients, and the pretense that their methods are the only invariably successful ones.

The dentist who is not master of all methods really has none. Many who thrive financially will never accomplish much good. Boasted methods fail in very many cases, and it is only by the exercise of an enlightened and clear judgment that the best shall be perceived and applied. Each individual case brings its own needs, and out of it should be gathered the plans for successful treatment.

This is eclecticism in dentistry and in medicine.

DISCUSSION.

Dr. Noyes—While commending the paper, believes the principal difficulty will prove to be in the attempt to learn all methods, to enable one to choose the best, as in the use of medicaments, materials, implements, etc.

Dr. Allport—Commends the paper—compares our professional beliefs to political faith—in that one may honestly believe what to another is totally wrong. To one the use of soft gold is a great error; to another cohesive gold is a mistake. Thinks we are all too liable to be influenced by prejudice, or preconceived notions.

Dr. Marshall—Believes that the successful practice of dentistry lies in true eclecticism. As you all know, fifteen years ago those who used amalgam were tabooed. Now, on every hand, we see plastics, tin, and amalgams used, and, when rightly used, much good resulting therefrom. Many failures are not because of poor operations, but because of improper selection of material. We should not be governed by inflexible rules. We must not use all gold, or all amalgam; must not separate solely with the file, nor restore all by contour.

Dr. Koch—Disagreed with Dr. Marshall in regard to the total discountenance of amalgam, especially in Chicago, and firmly believes that dentists should have a reason for all things, and thus be a true eclectic.

ODONTOLOGICAL SOCIETY OF NEW YORK.

The January meeting of this society was held at the residence of Dr. W. E. Hoag.

Dr. Raymond was introduced to the society, and read an exceedingly interesting paper on "Hydrochlorate of Cocaine," citing five

cases in his own practice in which the anæsthetic had been used. The instances in which it was applied to the tooth substance did not give very satisfactory results, even where the cavities had been thoroughly dried, and the hot air syringe used. He believes the best effects are obtained by a hypodermic injection of the drug at a point near the nerve trunk. In this manner he has produced anæsthesia readily, and had prepared and filled otherwise exceedingly sensitive teeth with no after effects other than slight soreness for a short time, complete recovery from the anæsthesia taking place in from twenty-five to thirty-five minutes. He advised that fresh solutions be made from the crystals dissolved in distilled water. Care should be taken not to introduce air into the tissues with the hypodermic syringe. To prevent this the syringe should be fully charged with the fluid, thus excluding all air. Sufficient of the fluid should then be forced out to leave only the exact quantity required for use. To prevent any pain from the introduction of the needle, Dr. Raymond saturates a pellet of cotton with the cocaine, and touches the spot a minute or two before the puncture.

Dr. Perry—Stated that a meeting of a few gentlemen, both Dr. Bogue and himself had been injected with the cocaine; the introduction of the needle being near the inferior dental nerve at the mental foramen, causing complete loss of feeling in the lower lip of that side, and extending somewhat to the tongue and the side of the face. The next morning he experienced a feeling of soreness in that locality, and an uncomfortable tingling feeling had been noted for a day or two since, causing him to unconsciously put his hand to that side of the face. He made this statement hesitatingly, as the peculiar sensation might be due to the fact that he had been exceedingly busy and worried for a day or two, and had slept very little at night. He thought, as Dr. Bogue had not been similarly affected, it might possibly be nervousness in his case.

Dr. Bogue—Stated that he felt no after effects from the hypodermic administration of the cocaine, except, perhaps, a slight soreness, which soon passed off. With reference to the use of the hot air syringe, Dr. Bogue questioned if Dr. Raymond was able to get a continuous hot air current, and thought the pain in the tooth might have been from sudden changes of temperature, as Dr. Bogue had never seen but one syringe capable of giving a steady blast of hot air, and that one was invented by Dr. Brasseur, of Paris.

Dr. Woodward—Asked if any cases of nausea had been noticed in using the new anæsthetic.

Dr. Raymond—Had one case, that of a young miss, but the nausea was very slight, and soon passed off.

President Jarvie—Stated that he would be pleased to hear remarks on Dr. Beers' paper, read at the last meeting.

Dr. Dodge—Said that Dr. Beers had in his paper simply made engaging and fascinating statements concerning an old theory, but he thought the society was indebted to him for bringing up the subject, which was an important and interesting one.

Prof. Mayr, (of Springfield)—Entertained the society with a lecture on "The Products of Putrefaction and Fermentation in the Mouth," in which some very interesting chemical processes were described. He did not think that acid conditions in the mouth had as much to do with caries in teeth as was generally supposed, but considered that antacid washes and tooth powders, though harmless, did little good. He advised a thorough cleansing of the teeth and mouth, and the employment of antiseptics, such as carbolic acid, in dilute washes. To substantiate his theory, he stated that of the peasants of Germany many ate sauer-kraut for breakfast, sauer-kraut for dinner, and sauer-kraut for supper, without so much as picking the particles from between the teeth; and still their dentures would compare favorably with those of young ladies of this country. It was his opinion that good or poor qualities of teeth were an inheritance; that if a young man had good front teeth and the molars all broken down with decay, it was a certain indication that his father's teeth were similarly affected.

Dr Clowes—Thought much of the pitted and poor condition of teeth should be laid at the physician's door, as they were constantly prescribing strong acids and iron preparations, which, though taken through a glass tube, would follow the mucous membrane back to the mouth and affect the teeth.

Dr. Dwinelle—Thought Prof. Mayr's lecture full of interesting chemical mysteries, but that the profession ought not to accept new theories too readily, when years of constant practical experience had made positive certain antagonistic facts. He had not the slightest doubt that acids dissolved out the lime salts, and thus caused the breaking down of tooth structure.

Editorial.

MATRICES.

For at least twelve years have we almost daily used the steel matrices alluded to in the report of the Northern Central Society of New Jersey, in filling approximal cavities between bicuspids and molars. It is no longer an experiment. After so long an experience with them one of two things is definitely established: either we are incompetent to properly judge of their merits, or to one whose methods of operating are anything like ours, they would prove almost indispensable when their action is fully comprehended. But they should not be used without thorough reflection as to their capabilities and disadvantages. In our early use of them it is probably the fact that teeth were sacrificed, because of inattention to certain rules that should be observed in their application.

Doubtless every operative dentist knows what they are, and their origin. The profession is indebted to Dr. Louis Jack, of Philadelphia, for the matrix, as it is for many other good things. Who first thrust a flat piece of steel between two teeth for the purpose of converting an approximal into a simple crown cavity, it would be hard to determine. Many dentists have used the safe side of a piece of separating file, but such a flat piece of steel will not answer the purpose of one of Jack's matrices, for the latter are carefully formed so as to restore the contour of a tooth instead of leaving a perfectly flat surface, and in a set of twelve may be found one that is adapted to any cavity on either side of the mouth. There are a number of grades of thickness, and one may obtain the "thin" "medium" or "thick." In most cases that require a matrix, we prefer the "thin." It is not within recollection that we have, in any case of ordinary decay of the proximal surfaces of bicuspids or molars, found it necessary to wedge the surfaces apart, other than what the matrix itself accomplishes, for the purpose of making space.

Every dentist knows that it is extremely difficult to insert fillings upon the posterior or distal surface of bicuspids and molars, especially if the cavities be near the cervical borders. When the teeth are crowded it is a painful and tedious process to gain the necessary space for filling in the usual way. The gold is not

easily consolidated in such places either, and unless the most scrupulous care be exercised and the utmost skill be employed, there will be leaky places. But if the overlapping enamel be cut through, and the cavity made as large upon the grinding surface as anywhere in its extent, a number of points are gained.

First, every position of the decayed surface is brought into plain view, and it becomes possible to excavate perfectly ; secondly, the overlapping portion of coronal enamel being removed, there is less danger of the breaking down of the masticatory surface that proves fatal to many fillings ; and thirdly, it is possible to place the proper matrix between the two teeth and thus make a single cavity of the compound one, the operator being enabled not only to properly condense the gold upon the cervical wall and all through the cavity by a direct blow, but to perfectly restore the contour of the tooth in every point. There is another great advantage in this method of filling proximal cavities, and that is, no more gold than is necessary is introduced, and there is nothing to remove from between the teeth by files and burs. Emery paper and holly strips are quite sufficient for the perfect polishing of the gold.

Of course such an operation as this presupposes the existence of a tooth next the surface to be filled. But it is not essential that it should be very near ; if there be a moderate amount of space between them, two or more matrices may be inserted. If the space be considerable, a wedge of orange wood may be driven between two of the properly arranged matrices. In most cases it will be found necessary to drive a wedge against the matrix near the cervical border, to insure its close adaptation at that point. In filling a cavity so prepared, the utmost care should be observed in driving the gold toward the matrix and into the angle formed by the matrix and the edge of the tooth, at the margin of the cavity. This will be the point where most beginners in this method of filling will fail, and the fact cannot be too strongly impressed upon their minds. A little practice will make perfect, and those using this method will be delighted with the ease and perfection with which they can fill proximal cavities in the bicuspids and molars, *when all the margins are firm and strong*, and when the tooth is properly excavated. It must be remembered that there should be no undercuts to whose remotest point the plugger will not have direct ac-

cess. The filling is to be held in place by making the cavity slightly retentive in shape upon the sides.

We said that this method of filling teeth would delight operators when the walls were perfect and strong. But if they be weak and friable the matrix is liable to prove a delusion and a snare. The operator finds it so easy to fill the ordinary proximal cavity when the tooth walls are firm, that he extends its use to weak, frail teeth, whose exposed edges need strengthening by judicious knuckling and protection. The gold in such cases should be carefully drawn over the exposed and fragile margins, and for this work the matrix is not adapted, except in a very small class of cases. The failures that have been encountered were in the injudicious use of this appliance where it was counter-indicated. A matrix was perhaps wedged up against infirm, frangible walls, and the gold then forcibly driven against them without being carried over sufficiently far to act as a protection. What wonder that these unprotected margins gave way, and the operation became a failure? The matrix is one of the most useful appliances that has been placed at the command of the dentist, but like the dental engine it should be used with judgment, else it may result in direct harm. In cases where some of the walls of an approximal cavity were gone, we have, however, frequently used a matrix ground down to one-half or less of its usual depth, and wedged the narrow blade against the cervical wall for the double purpose of holding the rubber down to place, and of supporting the foundation of the filling until past the point of principal danger. It also enables one to make sure of the adaptation of the gold at the most distant part of the filling.

In the insertion of plastic fillings in the distal surfaces of teeth, the matrix may be made to play a part even more important, if possible, than in the use of gold.

INTERNATIONAL MEDICAL CONGRESS.

The ninth triennial session of this body will meet in Washington, in 1887, and the committee is busily at work perfecting the general plan and the permanent organization. The meeting of 1881, in London, was attended by a large number of Americans, and the feeling among the delegates was, that when it should convene in

this country, every effort must be made to secure as good or better results than were there attained. The committee has presented a partial report to the medical profession, the sections have been designated, and the general officers selected. That it may be known who are eligible to membership we publish the first two rules, which read as follows:

1. The congress will be composed of members of the regular medical profession, who shall have inscribed their names on the register of the congress, and shall have taken out their tickets of admission. As regards foreign members, the above conditions are the only ones which it seems expedient to impose.

The American members of the congress shall be appointed by the American Medical Association, by regularly organized State and local medical societies, and also by such general organizations relating to special departments and purposes as the American Academy of Medicine, the American Surgical Association, the American Gynecological, Ophthalmological, Otological, Laryngological, Neurological, and Dermatological Societies, and the American Public Health Association; each of the foregoing societies being entitled to appoint one delegate for every ten of their [its] membership.

2. The work of the congress is divided into eighteen sections, as follows, viz: 1. Medical Education, Legislation and Registration, including methods of teaching and buildings, apparatus, etc., connected therewith. 2. Anatomy. 3. Physiology. 4. Pathology. 5. Medicine. 6. Surgery. 7. Obstetrics. 8. Gynecology. 9. Ophthalmology. 10. Otology. 11. Dermatology and Syphilis. 12. Nervous Diseases and Psychiatry. 13. Laryngology. 14. Public and International Hygiene. 15. Collective Investigation, Nomenclature and Vital Statistics. 16. Military and Naval Surgery and Medicine. 17. Experimental Therapeutics and Pharmacology. 18. Diseases of Children.

It may be well to compare with these the division into sections of the London congress, which was as follows:

1. Anatomy. 2. Physiology. 3. Pathology. 4. Medicine. 4. (sub-section) Diseases of the Throat. 5. Surgery. 6. Obstetric Medicine and Surgery. 7. Diseases of Children. 8. Mental Diseases. 9. Ophthalmology. 10. Diseases of the Ear. 11. Diseases of the Skin. 12. Diseases of the Teeth. 13. State Medicine. 14. Military Surgery and Medicine. 15. Materia Medica and Pharmacology.

It will be seen that so far in the plan proposed for the American meeting, no provision has been made for a section of diseases of the teeth. We think a great mistake was made in not recognizing this specialty at the beginning. At the London meeting there

were in attendance two hundred and twenty delegates from America, which was nineteen more than were registered from France, seventeen more than from Germany, and one hundred and eighty-seven more than from Russia, which had the next largest representation. Of the American delegates, practitioners of dentistry formed an important percentage, and the sessions of section twelve were not exceeded in interest by those of any of the divisions of the congress. In no country upon the face of the globe does dentistry occupy a higher position than in America; and were our fifteen thousand dentists to be denied recognition, it would not only be a professional, but a national humiliation. Those dentists who were in attendance upon the London meeting have a great debt of hospitality which they desire an opportunity to repay, and it will be the source of much bitter feeling if the privilege be denied them. Nor can we see how with any kind of consistency they can be excluded. The meeting will be under the auspices of the American Medical Association, and this body has a section of dental and oral surgery, and in view of the precedent established in 1881, such a division of the congress of 1887 should have been determined upon at the outset.

The attention of the committee has been called to the omission, and there is little doubt that it will be remedied, and a section of oral medicine and surgery organized. The whole power and authority rests with the general committee to name the officers and put such a section in working order, and this will, in the event of its establishment, forestall any charges of seeking position for personal aggrandizement.

As a medical body it is, of course, quite impossible for the congress to recognize any but the one distinguishing medical degree of M. D. A reference to the first rule quoted will convince any one of this. "The congress will be composed of members of *the regular medical profession.*" This is more restrictive than the qualification prescribed by the London meeting, whose rule read: "The congress will be composed of *medical men legally qualified to practice* in their respective countries." No degree other than a regular medical one was there recognized, yet practically none were shut out, for upon registering, when asked "what is your title," it was necessary but to answer "simply doctor." In some cases, when other than medical degrees were offered, the application was refused, but

it was only requisite that the applicant should appear at the desk a little later, and to the stereotyped query give the title of "doctor." It is probable that some such opportunity for membership will be given in 1887. Certainly a section of diseases of the teeth would be comparatively inefficient if none but those possessed of a strictly medical degree were admitted.

The officers of the congress selected are as follows:

President—Dr. Austin Flint, Sen., of New York.

Vice-Presidents—Dr. Alfred Stillé, of Philadelphia; Dr. Henry I. Bowditch, of Boston; Dr. R. P. Howard, of Montreal, Canada.

Secretary-General—Dr. J. S. Billings, U. S. A.

Treasurer—Dr. J. M. Browne, U. S. Navy.

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VULCANITE PLATES.

The advocates of rubber dentures are always upon the defensive. Urge as one may their good qualities, there yet sticks in the mind of every unprejudiced dentist the fact that caoutchouc is *not* the best material to be placed in continuous contact with soft tissues, especially the mucous membrane of the mouth. There probably is not a dentist using the base who does recognize this fact, and deplore it. Various means of overcoming this incompatibility have been devised, heretofore with but poor success. We have, however, lately been experimenting with "Vulcanizable Gold," advertised in this number, and are of the opinion that a long step towards solving the problem has been made. It is easily applied to the palatal portion of a plate, and it will not peel off, while it entirely prevents the contact of the rubber with the oral vault. The plate is very much improved in appearance and value, and certainly it must prove more tolerable to the tissues. We think the makers of the better class of rubber plates would do well to try it.

OUR BOOK TABLE.

A Text-Book of Hygiene. *A Comprehensive Treatise on the Principles and practice of Preventive Medicine from an American Standpoint.* By George H. Rohe, M. D., Professor Hygiene, College of Physicians and Surgeons, Baltimore; Member American Public Health Association; of the Medical and Chirurgical Faculty of Maryland, etc., etc. Baltimore: Thomas & Evans, 1885, Octavo pp. 324.

Within the past decade hygienic science has made important strides, and a constantly increasing interest is manifested in preventive medicine. If it be better to avoid disease entirely, rather than to secure convalescence after a perhaps lingering illness, then is hygiene one of the most important branches of medical study. With the advance in knowledge concerning all zymotic and septic diseases, comes perception of the fact that it is to prophylactic medicine that we must chiefly look for relief from a large class of the hitherto most fatal disorders to which man is subject. Especially is it important that the physician who places any faith whatever in the bacterian origin of certain diseases, should become thoroughly conversant with the conditions which most favor the growth of micro-organisms. And even those illnesses that are not supposed to have any connection with the multiplication of microbes, are yet largely dependent upon hygienic conditions for their virulence. It may well be conceived, then, that a thorough knowledge of hygienic laws should form the basis of the education of every physician, and that some of the time of every head of a family might very profitably be spent in the reading of works on hygienic science. Those physicians who graduated some years since had not the opportunities for thorough acquaintance with the laws of health, and hence it is important that they should have at hand the best authorities upon the subject.

During the comparatively brief time since preventive medicine was raised to the dignity of a special branch of medical science, the field has become so extended that any work which claims to cover it all must of necessity give but cursory attention to certain departments, and that is the fault, if there be a fault, in the work under consideration. Yet it is sufficiently thorough to give one a perfectly clear idea of what is in accordance with, and what is in contravention of, a state of health. Some idea may be given of the

comprehensiveness of it by an enumeration of the principal topics treated of in the book: The Air; Water; Food; Soil; Sewage; Dwellings; Hospitals; Schools; Occupations; Military, Camp, Marine, and Prison Hygiene; Exercise; Baths; Clothing; and the Disposal of the Dead. In addition there are chapters upon The Germ Theory of Disease; Contagion and Infection; History of Epidemic Diseases; Antiseptics and Disinfectants; Quarantine; and Vital Statistics.

The book is well written, and it contains a mass of information of the utmost importance, not only to every physician, but to all who desire to avoid illness and preserve the elasticity and strength that pertains to perfect health.

Basic Pathology and Specific Treatment of Diphtheria, Typhoid, Zymotic, Septic, Scorbutic, and Putrescent Diseases Generally. By Geo. J. Ziegler, M. D., late Physician to the Philadelphia Hospital; Author of "Zoo-Adynomia"; "Researches on Nitrous Oxide," etc., etc. Philadelphia: Geo. J. Ziegler, M. D., pp. 225. Price $2.00.

Dr. Ziegler is known in dentistry as one of the early editors of *The Dental Cosmos.* He is a ready and prolific writer, one who thinks for himself, and is not beholden to any one for his views on pathological subjects. He presents another consideration of the all engrossing medical topic of the present day, that of sepsis and antisepsis. The subject is yet too unsettled for the proper drawing of definite conclusions, and it behooves any one who would aim at intelligence to study it from more than one standpoint.

The author seems rather to ignore than to combat the later theories of Pasteur, Koch, and others concerning the origin of zymotic diseases, and to attribute them to chemical rather than fungoid origin. His theory is, that in all septic and infectious diseases, all of exanthematic and scorbutic disorders, necræmic tendencies, and putrid typhoid and dissolutive cases generally, the symptoms point to a general basic superalkaline condition of the blood and the system. This common morbific alkaline agent of these diseases he believes to be the well known ammonia, that is the constant product of the organic changes going on in the body, and he very ingeniously cites many well-known conditions and facts in support of his theory. The opponents of tobacco will find much to please them in the book, because the author declares that its use is one of

the principal causes of the production of ammonia in the system. He believes in the spontaneous origin of many septic diseases, without the agency of micro-spores or germs, the favoring conditions requiring nothing but the presence of tobacco, with the products of decomposition.

The author has a wonderful vocabulary, and delights in multiplying names and technical terms. He is always positive and aggressive in his statements, sometimes indeed approaching dogmatism; but he is always earnest, consistent and congruous.

In his treatment of the diseases named he depends, as might readily be imagined, mainly upon acids.

The opponents of the germ theory of septic diseases will read the book with great delight.

Annals of Surgery, the new monthly journal, to be published simultaneously in this country and Great Britain, has made its appearance. The first number, of ninety-six pages, presents a handsome appearance, and contains some very interesting and instructive articles. With the very able editorial corps announced we may look for a journal of commanding influence.

$5.00 per annum. J. H. Chambers & Co., St. Louis.

Science. Who are subscribers to this journal? Every man who is interested in and earnestly desires to keep abreast the advance of general science. The journal is what its name indicates; it is science itself. Previous to its publication we had no journal so broad in its scope as is this. Since its first number it has gradually increased in interest, until now it is an essential to every man who would be thoroughly conversant with general scientific knowledge.

Cambridge, Mass. Weekly, $5.00 per annum.

The Sanatarian is one of the best journals that visits us. As its name indicates it is devoted especially to hygiene, and in its particular field it stands unrivaled. As preventive medicine assumes a position of greater importance, the necessity for such publications becomes more and more apparent, and the duty of physicians to keep pace with the advance of thought in this direction becomes an imperative one. It is ably edited by A. N. Bell, A. M., M. D., assisted by a distinguished corps of associates and collaborators.

Terms $4.00 per annum. Address 113 Fulton Street, New York.

Caulk's Dental Annual for 1884–1885. The Annual of last year contained a great mass of statistical and other information for dentists, and that for this year is nothing inferior. There is a list of the dental societies of the United States, with their officers, that alone is worth the price of the number to any who is interested in his profession. There are lists of dental colleges and periodicals, with digests of the various State dental laws, dental patents, number of dentists, dealers and dental manufacturers in the United States, with a large number of original articles and some judicious selections. We wonder what was the source of all the information contained, the most of which seems entirely reliable and accurate.

L. D. Caulk, D. D. S., Camden, Delaware. Price 25 cents.

Irregularities in Human Teeth, or Dental Teratology. By John J. R. Patrick, D. D. S, Belleville, Illinois. An Essay Read before the Illinois State Dental Society, at its Twentieth Annual Session, Springfield, N. Y., 1884.

Dr. Patrick has become well known as an authority in irregularities and malformations of the teeth and jaws. This pamphlet, of twenty pages, contains his latest ideas upon the subject, and is a thorough and systematic consideration of the causes and treatment of dental irregularity, that no one, unless like Dr. Patrick he has made an exhaustive study of his subject, is competent to prepare. We do not know that this pamphlet is for sale, but if it is not, it should be.

Transactions of the Odontological Society of Pennsylvania: From its Organization, Feb. 1st, 1879, to the Close of the year 1883.

From the secretary we have recevied the above-named volume. It is the record of the procedings of this important society for the first five years of its existence. It contains valuable papers from men like Guilford, Essig, Webb, Tees, Truman, Register, Bonwill, Kirk, and other members, with the discussions consequent upon their presentation. We could not say more for the contents if we were to write pages. The volume is handsomely bound, and is a credit to the society.

A few remaining copies are for sale by the secretary, Dr. Ambler Tees, 548 North 17th Street, Philadelphia. Price $3.00.

OBITUARY.

Died, at his residence in Simcoe, Ontario, November 26th, 1884, Lyman Wells, L. D. S., a dental practitioner of more than thirty years' standing. He was born at Canaan, New Hampshire, January 7th, 1809, and was of excellent lineage. His mother was a niece of James Otis, of revolutionary fame, and all his ancestors were officers, some of them of great distinction, in the revolutionary army. Mr. Wells removed to Upper Canada about the year 1835, and had for the whole, or nearly all the time since, been a resident of Simcoe, in the County of Norfolk.

Twenty-eight years ago the editor of this journal was a patient of Mr. Wells. From that time to the period of his death the acquaintance and friendship was intimate and warm, and we can personally testify to the high character, the moral worth, the professional ability, and the genial qualities of the deceased. He was one of the early experimenters in and practical workers of the art of photography, or "daguerreotyping," as it was then called. About the year 1850, his attention having been attracted to dentistry, he came to Buffalo and entered the office of Dr. Nathan Whitcomb, and after spending sufficient time to become acquainted with the art, he returned to Simcoe and opened an office, where he continued in practice up to the time of his death.

Mr. Wells was one of the charter members of the Ontario Dental Society, and early in its history served as its President. He always retained a keen interest in its welfare, although for some time his health had been such as to forbid his presence at the meetings. He was an honorary member of the Eighth District Dental Society of the State of New York, and until within a few years was usually present at its meetings. His home reputation as a dentist was very high, and until strength failed him because of his years, he enjoyed a large practice, patients visiting him from remote localities. In church, masonic, and social circles, he was always very popular, and in his latter days was revered as a father. There is many a professional friend beside the writer to whom the tidings of his death will bring a deep sorrow and lasting regret.

Current News and Opinion.

DINNER TO MR. TOMES.

Mr. Charles Tomes, of London, upon the occasion of his recent visit to America, was warmly welcomed at a dinner given in his honor at the Hotel Brunswick, New York, on Saturday, Dec. 27th, by the following friends : Drs. Northrop, Dwinelle, Lord, Atkinson, Bronson, Kingsley, Jarvie, Hill, Myrick, Perry, Davenport, Bodecker, and Carr. Unfortunately, Drs. Francis and Cook were prevented from attending by illness. Under the combined influences of a table superbly decorated, and the solid enjoyment of the very perfection of a *menu*, each melted into his most genial mood, and contributed his quota of anecdote and joke, interspersed with lively reminiscences, professional and otherwise, for two or three hours, when Dr. Northrop, who presided, arose and gracefully proposed the first toast of the evening :—"The health of our honored guest." Mr. Tomes responded in a very happy manner, expressing the great pleasure that he experienced in again visiting America, and congratulated the members of the dental profession on both sides of the Atlantic for the hearty good-fellowship existing between them. Drs. Dwinelle and Kingsley then followed, recalling the many courtesies extended to them by Mr. John Tomes, the father of the guest, when they were in England twenty or more years ago. Nearly every one present forgot his diffidence and made a few remarks, one succeeding the other, until the limit of Saturday night was reached. Then, after cordially wishing Mr. Tomes a pleasant continuance of his visit among us, and a safe return home, guests and hosts separated. It was a peculiarly social occasion, and one that will not soon be forgotten.

C.

MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

The forty-first annual meeting of the Mississippi Valley Association of Dental Surgeons will take place in the Lecture Room of the Ohio Dental College, at Cincinnati, at 10 o'clock, A. M., Wednesday, March 4th, 1885.

It is especially desirable that this meeting be unusually large, as it is expected that a number of papers on various subjects pertain-

ing to the profession will be read by well-known writers, and in view of this the officers expect that every member will make it a point to assist by his personal presence. A most cordial invitation is extended to all members of the profession, no matter where they reside, to come and enjoy themselves, and profit by the interesting discussions that will take place.

PROGRAMME.

I.—Progress of Dental Education. II.—Recent Theories Concerning Caries of the Teeth. III.—New Remedies for the Treatment of Oral and Dental Diseases. IV.—Improvements in Prosthetic Dentistry. V.—New Methods and Materials for Filling Teeth. VI.—Incidents of Office Practice.

AN ENGLISH ADVERTISEMENT.

TO DENTISTS.—The Managers of the North Surrey School District are prepared to appoint a duly qualified Dentist to attend to the teeth of the children at their School at Anerley. The salary offered will be £60 a year, and materials will be supplied. The time required for the performance of duties will be from about three to four hours a week. Information as to times of attendance, &c., can be obtained by calling personally upon the Superintendent at the Schools, Anerley. Forms, on which alone applications will be received, may be obtained from me, and must be returned not later than the 22nd instant.

88, High Street, Dorking, H. J. CHALDECOTT,
November 11th, 1884. Clerk to the Managers.

This reads strangely to an American. We are not accustomed to such an intelligent recognition by those in authority, of the necessity for early care of the teeth of children in public schools.

GOLD MEDAL AWARDS TO UNITED STATES PRODUCTS AT INTERNATIONAL HEALTH EXHIBITION, LONDON, 1884.

Among the food products exhibited at the International Health Exhibition, London, 1884, from the United States, were *Beef Peptonoids* and *Maltine;* both of these preparations carried off the only Gold Medal and highest Award against numerous competitors in their respective classes. All food preparations were critically analyzed at this Exhibition by a jury composed of the best chemists in the country.—*London Lancet.*

HOW TO KEEP CIDER SWEET.

When the saccharine matters by fermentation are being converted to alcohol, if a bent tube be inserted air-tight into the bung, with the other end in a pail of water, to allow the carbonic acid gas evolved to pass off without admitting any air into the barrel, a beverage will be obtained that is fit nectar for the gods.

A handy way is to fill a cask nearly up to the wooden faucet, when the cask is rolled, so that the bung is down. Get a common rubber tube and slip it over the end of the plug in the faucet, with the other end in the pail. Then turn the plug so the cider can have communication with the pail. After the water ceases to bubble, bottle or store away.—*Farm, Field and Fireside.*

CHLOROFORM *vs.* ETHER.

Dr. T. Gaillard Thomas stated at the late meeting of the American Gynecological Society, that he had substituted chloroform for ether in all cases in which there is any kidney disease. Ether has a peculiarly irritant action upon renal structures in a pathological state. In chronic Bright's disease, ether frequently induces uræmia, by suppression of the urinary secretion.

TO AVOID NAUSEA.

Making a patient keep his eyes closed while recovering from ether is a great aid in preventing sickness; for, owing to the patient feeling giddy, any object at which he looks appears to sway from side to side, and this by itself is sometimes enough to produce a feeling akin to sea-sickness, even in those who have not been anæsthetized.— *Med. and Surg. Reporter.*

A SPECIMEN.

All professional illiteracy is not among the dentists, as the following death certificate, that recently accompanied a body from the West to Buffalo, will amply prove :

I hearby certyfy that the deseased come to her death by Dialeipyra or Feaver & the desease is not contachious.

P—— D——, M. D.,
Attending Physition.

TENNESSEE DENTAL ASSOCIATION.

The Nineteenth Annual Meeting of the Tennessee Dental Association will be held in Nashville, beginning Tuesday, the 24th day of February, 1885, at 10 A. M., in the Lecture Hall of the University of Tennessee.

A WELCOME HOME.

Dr. Northrup gave a dinner at the Hotel Brunswick, on Saturday evening, Jan. 17th, to a few friends, to welcome Dr. Bogue, who had just returned from Paris. C.

THE ADMINISTRATION OF NITROUS OXIDE.

Pregnant women, even as far advanced as eight months, take nitrous oxide well. I may here mention the case of two patients, who were nursing, and in whom the shock from the extraction of a tooth, without the gas, stopped the milk secretion. Subsequently, having to undergo a similar operation under like circumstances, they determined to take the gas, and in neither instance did any derangement of the function of lactation occur. Children with chorea, and people who have had hemiplegia, take the gas well. In phthisical patients, if the mischief is extensive, some caution is necessary, as in these cases the anæsthesia deepens after the removal of the face-piece, so that it is neither necessary nor advisable to start with any deep amount of insensibility. It is perfectly safe to administer this agent to epileptic patients. I have met with several cases where the extraction of a tooth without the gas has produced an epileptic attack, but I have never seen one occur when gas has been given. Great age is no bar to the administration of nitrous oxide, my oldest patient, a lady, having reached the age of ninety-four.—*Dr. Woodhouse Braine in Brit. Med. Jour.*

PRESCRIPTIONS USEFUL FOR NERVOUSNESS.

Tincture of valerian, tincture of hyoscyamus, equal parts. Mix. Dose, a teaspoonful in water, three times a day.

Valerinate of zinc, one drachm; ext. of conium, one drachm; ext. gentian, two drachms. Mix and divide into sixty pills. Dose, one pill three or four times a day.

Tincture valerian, tincture hyoscyamus, spirits lavender, each one ounce; paregoric, two drachms. Mix. Dose, teaspoonful every three hours till rest is procured.

Tincture cinchona, tinct. valerian, tinct. hyoscyamus, spirits lavender, each one ounce; spirits camphor, one-half ounce. Mix. Dose, teaspoonful three times a day.

OUR RULES.

Being determined, if possible, that no one shall be able to say that the INDEPENDENT PRACTITIONER has been sent to him against his wish, we print our "Rules of Publication" in this issue. We would not, under any circumstances, send a copy to any one unless it was our understanding that it was desired; and in order that none escape seeing our rules we insert them here, with the request that if there be one among our many readers who is not willing to pay the trivial sum of $2.50 per year, he let us know.

TERMS—The subscription price is Two Dollars and Fifty Cents per year in *advance.*

REMITTANCES should be made to Dr. C. E. Francis, Treas., No. 33 West 47th Street, New York, by post-office money order or registered letter.

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The journal is mailed on the first day of each month. If you fail to receive it within a reasonable length of time thereafter, please notify the Buffalo office by postal card.

(41.) How can I utilize waste amalgam, old fillings, etc.? Also, where can I find instructions for making amalgams, calculated to meet the various conditions of teeth requiring that material. STUDENT.

(42.) In trying to remove a tooth pulp I was unfortunate enough to break a Swiss broach, the end of which remains fast in the root. Will some one please let me know how to get it out? R.

(43.) Sometimes parties come to me for artificial teeth, who have, perhaps, one or two teeth, more or less firm, remaining in the mouth, which they are not willing to part with. I generally advise them to have such teeth extracted, but they sometimes prefer to keep them. Am I not right in so advising them, and is it not better in the end to make a "clean sweep" in such cases?
LABORATORY.

(44.) How many States have laws for restricting the practice of dentistry? Are the laws in the different States similar in requirements? By replying will much oblige. S. B.

(45.) Of what utility is the sulphate of potassa that many use for mixing plaster of paris in taking impressions? Has it any other effect than to make the plaster set quicker? I wish that some of our chemists would answer this.
P. B. R.

(46.) "Hydrochlorate of Cocaine." Will some one please inform me concerning the physiological action of this preparation on animal tissue?
INQUIRER.

Answers.

R. H. B. (37.) If the teeth referred to have "never given the slightest annoyance whatever," better by all means "leave them unmolested." If they have stood the test for "fifteen years," they may never give trouble. To open them would incur a risk, and if unpleasant results followed, your patient would blame you, and you would blame yourself for your pains. F.

BOSTON. (38.) Your statement is not sufficient to enable one to judge understandingly. It is possible that the neuralgic pain proceeds from the teeth, but not probable, unless the pain can be determined as having its inception since the teeth became diseased. Let me ask a few questions that will suggest their own connection with the case. Does treatment of the teeth produce any change in the neuralgic condition? Are the pains of a true neuralgic character—that is, distinctly paroxysmal and intermittent, and induced by fatigue, malaise, and nervous exhaustion? Do they follow the course of any particular nerve? Are there tender spots anywhere upon the face, notably at the supra or infra-orbital, or mental foramens? Is there any particular soreness along the course of any nerve after a violent paroxysm or attack of the malady? Is there any pain from violent thermal changes inside the mouth? You have already stated that the pains are unilateral, and this may or may not be a valuable diagnostic sign. M. D.

CINCINNATUS. (39.) Perhaps the tooth which is "neither sore nor painful," but is "becoming loose," has no antagonizing fellow; or a scale of calculus may have formed on the root beneath the gum. Your description is not very clear. Leave the temporary stopping as it is for a time, and see what comes of it, but be sure that the gum is kept healthy and free from extraneous collections. To diagnose all cases with absolute correctness is hardly to be expected. Who can do it? "GOTHAMITE."

PENNSYLVANIAN. (40.) Sure enough! Why *will* so many dentists deal in misnomers? It is about time such errors were corrected. It is as stupid to call a tooth pulp a "nerve", as to call a first molar a "six-year-old molar."
IOWA.

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These properties added to the absolute safety of Listerine, its agreeable character and uniform strength, concentrates into this preparation every requisite of a perfect Prophylactic, and gives it undoubted superiority over all other Antiseptics, especially for internal use. The well-known therapy of the several ingredients of Listerine confirms its claims for more than merely mechanical germicidal properties.

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Dose.—One teaspoonful *three* or *more* times a day (as indicated). As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used *ad libitum*, diluted as desired.

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This accumulated evidence of merit indicates its special adaptability to

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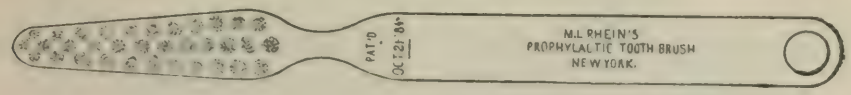
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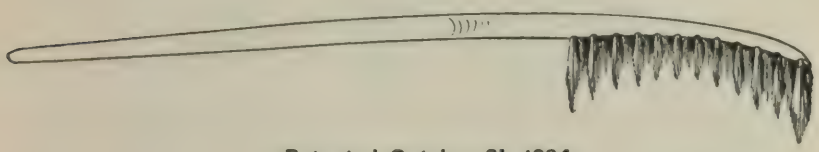
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NO OTHER BRUSH CAN SO PERFECTLY CLEANSE THE POSTERIOR AND BUCCAL ASPECT OF THE WISDOM TEETH.

Space can not be taken up here in enumerating the invaluable features of the brush; for other points of excellence in reference to the brush and care of the mouth, send stamp for pamphlet.

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Adult's, - - -	per doz.,	$3.00	Child's, - - -	per doz.,	$2.50
" half gross, -	"	2.75	" half gross, -	"	2.25
" 1 gross or more,	"	2.50	" 1 gross or more,	"	2.00

Sample brushes will be mailed on receipt of 30 cents.

In ordering brushes send 13 cents per dozen extra for postage, if desiring them mailed, otherwise they will be forwarded by express.

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1-5-an1

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

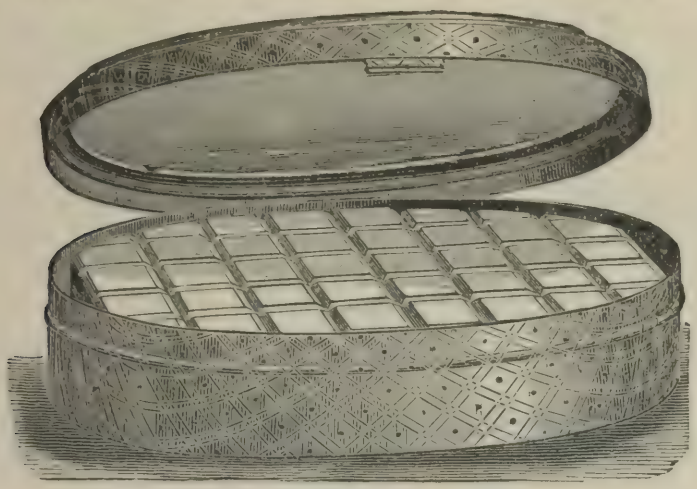
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



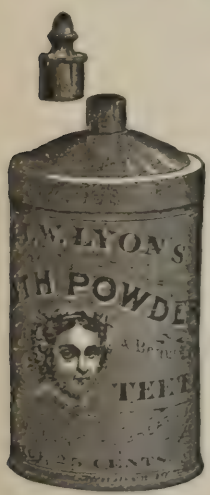
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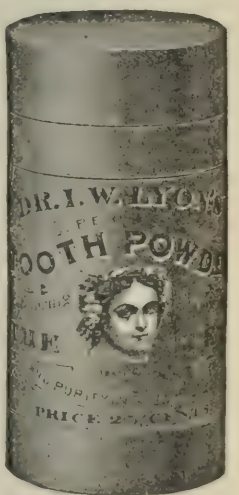
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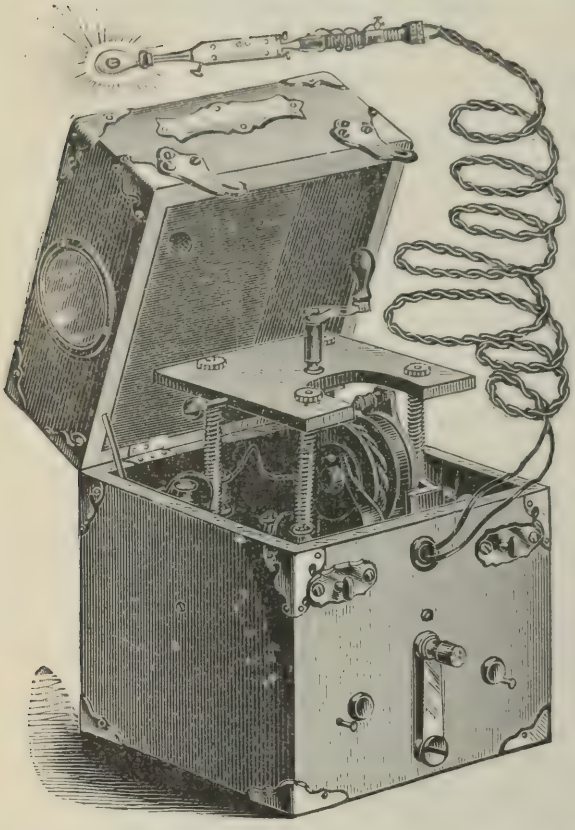
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THE

Independent Practitioner.

VOL. VI. MARCH, 1885. No. 3.

Original Communications.

TREATMENT OF DEFECTIVE TEETH DURING PREGNANCY.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

BY C. A. MARVIN, D. D. S., BROOKLYN, N. Y.

It may cause a smile of incredulity when I say that the answer not infrequently given to the question embodied in the title of this paper is: "Treat them, as at any other time, with care and thoroughness."

"With care," certainly; "as at any other time," by no means.

I fancy many a dentist can recall instances where the unusual nervousness of a lady patient, under operations not at all formidable nor apparently severe, has surprised and perhaps annoyed him exceedingly. Operations, which before had been borne without a murmur, now cause intense suffering, and the ordinarily quiet, self-possessed patient, whom it was easy and pleasant to work for, has become transformed into a restless sufferer, whose outcries and contortions make a strain upon his sympathies as well as his patience, almost too severe for him to bear.

If this experience occur to him early in his professional life, he finds it puzzling in the extreme. Unable to account for the extraordinary sensitiveness of teeth which he had operated on at other

times without difficulty, he concludes, perhaps, that it is all a whim, that his patient is foolishly timid, has lost her self-control, and is making unnecessary trouble. The result of such a conclusion is not favorable to gentleness of speech or of digital exercise. Now, it may be that great injustice is done to the patient by such a conclusion, and that an injury is inflicted as well upon the dentist's eputation. His power of judgment may suffer also, and hence a trinity of evil results proceed from an erroneous opinion.

An intimate knowledge of the lady's real condition of mind and of body might reveal a state of things quite startling to the dentist. For instance, he might discover that her mind was entirely free from whims; that there was a resolution to endure, which, all things considered, was simply heroic; that the tax and drain upon her nervous force were beyond all former measure; that the suffering she manifested was real and of a peculiar acuteness, too much for her quiet endurance, and only to be tolerated through sheer strength of will, never before required of her. While nature shrank, will persisted, and, in reality, the woman was more a heroine twice told than when on former occasions she sat patiently and uncomplainingly through long and complicated operations. Her nervous system was then in repose; it is now in a state of agitation; then she only suffered fatigue, now agony. She is really taxing herself to the utmost to bear, without resistance and without murmuring, the necessary operations. The struggle is terrible, and she will be wearied and limp for hours as a result. No word of harshness or impatience should add to her already heavy burden. She realizes, as no dentist can, what her condition and her experiences are. She can hardly restrain the flood of her tears, both on account of the pain and of her inability to bear it. A woman has a pride of fortitude as well as of beauty, and when it succumbs one may be sure the power to which it bows has no merely imaginary existence. It is real.

If this be her condition, how cruel to add another sting in the form of a severe word or an impatient gesture. Now is the time for the dentist to exercise his magnetic force, if he has any, and, by the steady equipoise of his own nervous energy, influence his patient, gradually reducing her agitation to quietness, or strengthening her by that mysterious transmission of nervous force which, though inexplicable, has been too often realized to be discredited.

So will he be better able to do his work; so will his patient be better able to endure it; so will he learn to exercise an influence, to exert a power which will be of essential service to him all through his professional life; and so will he win the gratitude of the delicate, nervous lady under his hands, and gain a life-long advocate.

But what of this hypersensitive condition of the teeth? And this unusual nervousness of the lady? And the severe struggle which is going on within her, as has been described? What of it all? Why is it?

The patient has entered upon the period of pregnancy, and the period and the state are pregnant of peculiar experiences and phenomenal manifestations.

A wonderful work of Nature is begun. It is the most important, the most trying, the most delicate that the human body is ever called on to undertake. A new living being is to be formed, carried, nourished, and finally, born. In its miniature form it is still to be supplied with all the organs of the mature body—all delicate tissues, all the intricate machinery necessary for the reception and transmission of sensation, for the exercise of functions necessary to the maintenance of life, when that life and the responsibility of preserving it shall have become an independent obligation.

Now, however, this new life is dependent entirely upon the mother. From her it draws its nourishment, from her life its life is sustained, and, as may readily be inferred, the drain upon her is severe. Not alone must she supply the pabulum which the embryonic bony tissues require for their growing solidity, and the muscular tissues for their toughening and development, and the digestive apparatus for its appropriate qualifications for a specific duty, but also the circulatory and nervous systems for their ready action and faithful service. Her nature is tapped, so to speak, in every energy, that the new and dependent life which she carries and nourishes may be supplied. And there is no consideration for her moods or conditions in this new life. Its demands are exacting, imperious, unintermitted. Be she sick or well, cheerful or depressed, fresh or wearied, wakeful or drowsy, the drain is never relaxed, and disregard of its demands is impossible. Her fate is upon her; she can neither escape it nor overcome it. During all the period which nature has fixed for the completion of fœtal life the mother is a slave to her unborn child.

Besides the draft upon the physical energies, there is another as constant and even more taxing, viz.: the drain upon the nervous energy.

If there be a disturbance in any part of the body, notice of its existence and extent is immediately conveyed to the sentiency—the brain's vital tenant—by the alert nerve messengers, which are by no means mere instruments of transmission, or sentinels set to watch and report any damage sustained by any part, but are themselves prime sufferers, and send intelligence to headquarters of their own hurt, as well as of injury to their neighbors. Hence, the report is immediate and reliable. The disturbed part calls for relief, and keeps calling. The system of lines of communication is actively exercised, for the lines are kept busy. This order of affairs is universal and well understood.

Now, take the case we are considering, of the pregnant woman. That there is considerable of a disturbance in a very delicate portion of the body no one will question. And there is good reason for such disturbance. The presence of a mass of matter to which the organ is unaccustomed is no slight thing. It occupies space; it is constantly growing, and, as it grows, it encroaches more and more upon nerves, blood vessels, adjacent organs, displacing, distending, disturbing and making the whole vicinity uncomfortable. Here is a tax upon the strength and the patience which must be experienced to be appreciated. Added to this is the constant feeling of solicitude lest harm should come, through accident, to the burdened woman; and, still further on, an intensity of solicitude, begotten of a new-born love for the living burden, lest harm should come to it, her forming child. What wonder that the woman is wearied with her burden, made uncomfortable by the crowding of every adjacent part by the intruder, worn with constant anxiety? What wonder that the steady disturbance taxes and drains the nervous energy? What wonder if the equipoise of nervous and muscular and digestive systems is deranged or kept in so critical a situation that the slightest untoward influence will derange it?

And if deranged, and these connected systems, delicate each in itself, and composing a marvelously complex machine when united, are out of harmony, the one with the other, what a Pandora's box of ills the pelvic region becomes, while an equally direful condition of things exists in the abdominal and thoracic regions! The ave-

nues of communication with the brain are crowded with complaining suppliants, and the presiding genius is overwhelmed with appeals for help and cries of distress.

So then, this distressful condition of things must be averted, and not invited. And many a female comes into the dentist's hands at a crisis when these two alternatives present themselves for his consideration. If he be unwise in his decision and his manipulation, he invites the sad consequences before described; if he be wise and prudent, he may do much to avert them. A woman in pregnancy should be guarded carefully from disturbing occurrences or disturbing thoughts. Anxiety, apprehension—in a word, *worry* should be kept from assailing her. Her own excited imagination will conjure up enough ills, without their phantom columns being reinforced by real evils. Keep the real ones away, and aid in dispelling the phantoms, if you would do a pregnant woman the greatest service.

Has not enough been said to indicate the kind of treatment the teeth of such a patient should receive at our hands? I will name it temporizing preventive treatment—treatment for the prevention of further damage for the time being. That is just it.

There are cavities possibly in such a mouth, which the dentist could fill permanently and without much pain. Whether it is wise or not to do so will depend largely upon the temperament of the patient. A phlegmatic individual might sit through the necessary appointments and escape all harm, and be loudest in her persuasions to her shrinking sister of a nervous temperament, to pluck up courage and do likewise.

Indeed, the hardships which some women will endure, even when in an advanced stage of pregnancy, and endure them day after day, are simply appalling. And in many such cases also, the offspring does not seem to have been injuriously affected. The child is born in due time, is well formed, hardy and perfect. That such instances are to be found does not weaken the argument before made that, during this period, women should be spared anxiety and nervous excitement. There is a wide difference between nervous excitement and physical or muscular weariness. The women who can bear the hardships without harm, are not the women who are easily susceptible to nervous disturbance. They are strong, hardy, unimaginative, self-reliant women. They may have strong passions, but are not

nervous. Or, if they are to some degree susceptible to nervous disturbance, they can still incur muscular weariness without necessarily suffering nervous prostration or excitement. On the contrary, a moderate degree of physical exercise, even to the extent of slight fatigue, is doubtless beneficial both to the mother and her child. But if these same strong, hardy women *should* receive a nervous shock, or experience an over-drain on their nervous energy, the result would be disastrous. It is not easy to produce such a shock on such women; certainly not easy enough for the ordinary and even extraordinary events of common life to effect it. It is not that they are differently made, nor subject to different laws, nor unaffected by the same laws; it is simply harder to touch the key-board of their nervous mechanism. It is encased within non-conducting walls, and the person is, so to speak, iron-clad.

Now, naval officers do not instruct their gunners to open fire upon an iron-clad vessel just because she is iron-clad, and can perhaps stand it without injury. So, unless some extraordinary reason exists for performing at once the dental operations required by such a patient, it seems higher wisdom to hold to the rule and do only temporary work. Cavities sufficiently prepared to receive and retain protecting gutta-percha fillings; gentle manipulation of the mouth through the whole sitting; avoidance of such methods, materials, appliances as seriously irritate the nervous system; a pleasant and hopeful view of the case; an encouraging word as to the condition of the teeth, their safety for months to come, their reduced sensitiveness when ready for permanent fillings—all these details enter into the proper treatment of patient and teeth at such a period.

If it is an important condition of the most successful operations upon the teeth, that the patient—any patient—be in a quiet and equable frame of mind during their performance, as it most certainly is, then every consideration of welfare of patient, excellence of operation and comfort of operator, would emphasize the propriety of performing only temporary dental operations for persons disqualified for preserving equability of mind and equipoise of nerve, by reason of a great demand made upon all their vital forces by nature.

It is the physician's duty to assist nature. It is the dentist's duty also. He can assist her and he can incommode her. He can outrage her. He can mar, perhaps destroy, her beautiful designs.

Neither is it necessary that it be his intention to do so. He can accomplish so evil a result as surely by ignorance, by thoughtlessness. Unwise operations during pregnancy may result in premature birth, or a weak, unbalanced, blighted child, peevish, morbidly timid, dyspeptic in earliest infancy, giving poor promise of brightness in time to come, and this fact is a severer burden upon the mother's heart and hands than even the growing child in fœtal life was to her weary body.

But some one may ask: "If these things are so, would it not be wisest of all to postpone any operation upon the teeth till after the period is over and the patient restored?" I answer, unfortunately, decay will not wait for you. It steadily progresses, and generally progresses more rapidly in such a period. There is a perceptible lowering of tone as well as quickening of sensibility in the dental tissue. The one condition invites attack, even advancing to meet it; the other reduces the ability to resist or endure its injury. So then, if the teeth are neglected there is great danger that some of them may be lost or seriously damaged by the delay. They must have attention, and the kind of attention advocated in this paper seems best calculated to insure the welfare of the teeth, as well as the welfare of the pregnant patient. For the teeth are specially sensitive; they are reduced in tone; there is a loss of vigor; an element of health is wanting; in a word, they are not as able to bear kindly thorough operations and escape the troop of ills that lie in wait for a weak tooth after it has undergone a severe operation.

Sensitiveness to cold, or, what is worse, hot drinks or air, soreness to the touch, elongation, looseness, death of the pulp, ulceration—you know them all, gentlemen; these all, in their order, are waiting to rush in and occupy the territory, if only they are given the opportunity. A good, healthy tooth defies them, when a weak one cannot successfully oppose their entrance. Now a defective tooth in the mouth of a pregnant woman of nervous temperament, is a delicate thing to handle if one would reap good results. Better a hundred times treat it delicately and temporarily than to take a risk so great. Both sides of the argument are in favor of this decision. A temporary filling will preserve the tooth as well as any other for the time being, and it cannot do any harm. Even if the tooth could be treated permanently without danger, no harm

is done it by the temporary treatment. The tooth is saved, and can be permanently filled at a future time just as well as now; the patient is relieved both from anxiety and suffering, and everybody is happy.

But another point calls for consideration. Suppose such a patient has teeth with exposed pulps, or with dead and putrefying pulps, or has an alveolar abscess; how in such a case? In the first place, may a kind Providence spare every pregnant woman from such a sad experience. Secondly, if such cases must be, may the same kind Providence spare any of our patients from getting in such a condition. Thirdly, if this cannot be, take the case in hand and treat it as delicately as is possible. Remedies for temporary relief are on the shelves of our medicine cases; use them. If unsuccessful, the best judgment must be exercised, and the two sides of the question carefully weighed. Which will be worse in its effect upon the patient; protracted suffering or such an operation as will be effectual? When consultation is had and a decision is reached, if accepted by the patient, let the dentist proceed to execute it calmly, cheerfully, and with a vivid sense of responsibility, regarding the necessity as not of his creation, and holding it to be his mission mercifully to relieve the sufferer thus thrust into his hands.

Such is wisdom; such is the dentist's duty; such responsibility must he take. In all such cases it is important that the dentist and the physician should consult freely, that the patient may receive the best services as the result of their combined wisdom.

I need only add that in order to make such consultations agreeable and profitable, it is necessary that dentists study carefully and become familiar with this department of physiology, that physicians who are supposed to be thoroughly versed therein may recognize and admit the wisdom of their suggestions, and no time be lost in the endeavor to create confidence or overcome opposition arising from an adverse judgment of the dentist's competency to give advice.

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DENTAL JURISPRUDENCE.

READ BEFORE THE SECOND DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

BY DR. J. ALLEN OSMUN, NEWARK, NEW JERSEY.

MR. PRESIDENT AND GENTLEMEN:

In inviting your attention to this subject I presume that it is one in which you feel a passing interest, although, in the busy days in which you are the chief actors, it may not have enlisted that amount of attention and thought to which the matter is entitled. In fact, I may embrace this occasion to remark that it is a matter of some surprise that it has received so little attention at the hands of our profession. I therefore beg your indulgence while I hastily sketch in rough outlines some of the more prominent reasons why the dental fraternity should have their attention directed thereto. The old Scotch gardener remarked, when asked why he was so particular in protecting his plants when the chances of frost were so light, that he would "rather be sure than sorry."

We must start from the premises, that legal or forensic medicine is the science that teaches the application of medicine to the purposes of law. The grand object of law is the establishment of truth, and for this purpose it levies a tax upon all sources, dental among the rest; and may I be pardoned if I suggest that there are many cases where it draws largely from this source, some of which I may refer to later.

There is, seemingly, a growing spirit of liberalism pervading medical circles, and the lines are converging, which I trust at no far future day will meet, by medical and dental colleges uniting on one common platform, in all that can elevate the one or broaden the other; that it will not be long when we can say, as Madam de Stael said to Napoleon; "Sire, genius knows no sex." So may we affirm that the science of healing knows no "sects."

You are aware, I presume, what progress is being made in this direction by the Medico Legal Society of New York. They are investigating all manner of questions and diseases that pertain to this subject of Medical Jurisprudence, but I have failed to see in any of

their published reports any reference to the dental profession, or to questions that affect us in any degree. As their by-laws prohibit any but physicians, lawyers and chemists from membership, this may in part explain the omission.

This society of which I speak, comprises some of the brightest intellects of each of the three professions named, and if they find this field so full of good things, I take it we too can find a few diamonds of knowledge, if we will but search for them.

We must recognize the fact that as professional men, dealing with diseased tissues, we are liable at any time to be put on the defensive from charges of mal-treatment; or that we may be called upon, in the capacity of expert witnesses, to give our professional opinion in courts of law; and as we well know, there is no other way of excluding the testimony of ignorant pretenders or empirics upon professional subjects, or eliciting the truth, except the test of cross-examination, and to be effectual for that purpose it must be allowed to become very searching; and I am convinced that, while it is not always done justly or fairly, it is the only mode of bringing out the facts before the intelligent jury; we do not realize how much need we have for accurate diagnoses, prognoses, and deductions of critical attention to our opinions, until we have them weighed and dissected by counsel before a jury.

There have been times without number when dentists have been in court, either as plaintiff or defendant, in suits of all descriptions. In fact, a superficial observer would be surprised to discover the close relationship existing between the two sciences of law and medicine. Let me recall a few cases where this is true; where life has been lost under the influence of anesthesia; where injuries have been inflicted from unskilled operations; where diseases of the oral cavity have been improperly handled; where testimony has been needed to identify remains from accident or suicide; where serious charges of attempted assaults of a sexual character while under anesthesia have been made; of the question and legality of fees and payment thereof. It were easy to multiply cases in illustration of this nature, but the foregoing will suffice to show something of the importance of this subject.

I am led to suggest that the very first case that a young practitioner could have might involve these very principles, and it, of course, is liable to come to any of us, at any moment.

When called into court as a witness, you will often find that your testimony will be opposed by others engaged by the other party to the suit. Then it will be of great importance to your side if your evidence can be substantiated by indisputable proofs, drawn from sources that admit of no question.

One of the greatest—shall I say the greatest?—attainments of any professioual man, is the cultivation of the faculty of close, minute observation; to be accurate in observation, to be critical in your deductions, is of paramount importance. Nor should it be supposed for a minute that this cultivation of the habit of minute observation will be incompatible with the other duties pertaining to our daily toil; it will, on the other hand, greatly enhance our usefulness.

That we often play an important part in the drama cannot be disputed, and, in the position of professional men, we are often criticised. For instance, Dr. Samuel Sexton, in a series of articles published in the *Medical Record*, said that, "It was believed that since Dentistry had become such a popular business, and diseased teeth had been so carefully retained in the jaws, through their influence, especially among the better-to-do, nervous diseases about the head were becoming alarmingly common. The very custom of wearing false teeth in the mouth attached to vulcanite, rubber, celluloid, and other plates, was also an evil of vast proportions; indeed, he sometimes thought that the evil done through ill-advised dentistry was greater than the possible good arising from the work of the more capable dentists."

This shows you what a position we are placed in. He condemns the leaving of pulpless teeth in the mouth, and then condemns the wearing of substitutes. I admit that he qualifies his statement at the last by saying the "more qualified dentists." The point I desire to bring out is that, if writers of Dr. Sexton's abilities find such charges to make, what are the laity liable to charge, when something has not gone to their entire satisfaction? And if they can bring medical men who would be biased by such articles as the one from which this sentence was quoted, will it not behoove us to be ready to fight fire with fire?

Our testimony should be the colorless light of science, brought to bear upon any case when it is summoned. It should be impartial, unprejudiced; there should be no half truths uttered, but the bene-

fit of the knowledge acquired, perhaps by years of study and observation, should be freely given. Take a case so commonly cited to show how important professional evidence is. Stained garments are placed in the hands of the expert chemist to decide the significance of those stains by scientific tests. His chemical reagents show them to be blood stains. But to leave the matter here might be to utter a falsehood in the name of science. He examines with the microscope, and testifies that the size and shape of the corpuscles prove it to be the blood of a fish or reptile; that it cannot be the blood of a mammalian. He has thus settled the all-important question in the case, and thus his scientific knowledge has solved the vital problem which could not have been determined by a layman, and thereby may have saved a life. So, time and again we shall have opportunity to bring our special knowledge to bear, and by its exercise shield or ward off the impending calamity, or help justice convict the empiric or quack. I will cite a few cases which will tend to show what value is sometimes placed on parts of the human body by juries: A man was struck on the head by an iron poker in the hands of a brakeman ; the external table of his skull was cracked. In consequence of the injury he was threatened with paralysis of the optic nerve. He sued the railway company for the wrong inflicted by their servant, and recovered $4,000.

$10,000 was paid for injury to a boy's brain received by the falling upon him of a berth in a Pullman car.

£500 was given for the injury to the spine of a lady caused by being compelled to jump from a railway carriage.

$7,500 was given to a young woman who fell, through a defect in the sidewalk, and fractured her vertebra, so that paralysis ensued.

These citations are interesting, as showing what value courts and juries sometimes put upon bones and brains, and to urge upon us to discharge the duties of our profession with faithfulness. It has been decided by the courts that when a man uses dangerous means, and life is imperiled thereby, he cannot escape the consequences of his acts. Then the burden of proof must rest upon him to show that no other means could have been used, and if he showed a reasonable degree of care and skill in his treatment he cannot be held liable for the results; but to prove this he must have testimony from professional ranks. The plea that it was an accidental or in-

nocent mistake will not avail him, and he will be liable, at the suit of the party injured, for damages at the discretion of the jury. Sound public policy in relation to the preservation of health and life would seem to require that this rule should have a rigid and inflexible application to cases when the laws of right treatment at the hands of any in our ranks should indicate the want of care and skill.

Instances may be quoted to show how important it is that we should have clear ideas upon this subject, where charges of improper liberties are made against operators, when anesthetics have been administered. You will know how often men have been unjustly accused of this, when the facts have proved beyond a question that there was not the slightest ground for them to rest upon. In these days of sudden deaths, when one can hardly read a daily paper without seeing one or more sudden deaths reported, has it not often occurred to you that such a case might occur in our operating chair, either with or without any anesthetic? I remember a case in my own practice, where a man of wonderful physical development came to the office to have a tooth extracted. He did not appear nervous at all. There was nothing in the operation to excite comment—a simple case of extraction—yet the moment that tooth left its socket that man became as rigid as marble—eyes set, stertorous breathing—it was some time before we got him around again. And so we will day by day have to take risks that we know not of, which may not manifest themselves, and yet in some unforeseen moment may overtake us. Dealing as we do with the nervous, the anti-nervous, the strong and the weak, it will readily occur to you why I decided in response to your invitation to read a paper tonight, to take the subject that I did.

I have tried to bring out some of the many points and reasons why we should have this matter written up and discussed. That the disease we are called upon to treat proceeds from pathological causes, and that lesions in the teeth and oral cavity are far-reaching, and go to sum up the happiness of the human family, and tend to their well being. We have, I think, sufficient ground for the necessity of a dental jurisprudence on which much remains to be written. The design of this paper will have accomplished its mission if what I have said will attract your attention to the importance of the subject, and lead to its investigation.

THE FACILITATION OF CONTOUR WORK.

BY E. A. BOGUE, M. D., D. D. S.

READ BEFORE THE ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

I believe it is generally conceded that the normal form and position of the human teeth are such as are best calculated to resist the destructive tendencies which surround them.

When, however, decay has attacked the teeth upon their approximal sides, the difficulties of restoration to the normal form have been so great as to discourage many from ever undertaking it.

The consequence has been that for obtaining access to very small cavities of decay, great slots or V-shaped spaces have often been filed between two teeth, which slots have afterward been receptacles for the debris of food and the nidus of decay.

A more careful class of operators have used wedges of cotton or tapes or wood until space was procured, and then placed a wooden wedge at the margin of the gum between the two teeth to be operated upon.

This process is both long and painful, and is not always certain.

Some ten or twelve years ago Dr. Jarvis, of New York, devised an instrument to separate two adjoining teeth by means of a screw, so that an examination could be made or a wedge inserted.

Shortly afterward, Dr. Perry made an improvement upon the form of the instrument, but it was still not applicable to the majority of cases.

With the consent of both these gentlemen I have undertaken to improve the device still further, and this evening take pleasure in presenting for your examination an instrument that I have used for the last four years, with great advantage to myself and an enormous saving of pain and tooth substance to my patients.

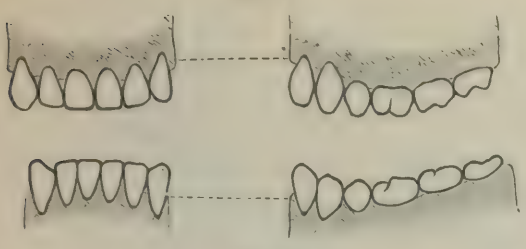
I have recently made some further modifications in the form and size of the instrument, that are shown in the accompanying engravings.

It is a question of applying the force gradually, to separate the teeth without touching the gums, in order to obtain little by little the necessary space, and once obtained, to have room enough to work without being hindered by the instrument itself.

If we examine the dental arches of a well developed subject, looking at the maxilla horizontally, we find that the arch of the lower jaw presents three different curves.

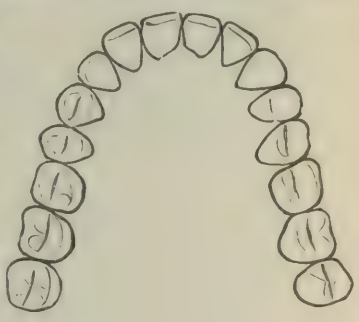
The first is represented by a line commencing at the upper end of each canine and describing a curve that is convex towards the upper jaw; the two other curves are indicated by the molars, which present a curve with the concavity looking downwards.

No. 1.



No. 2.

In the upper jaw the same curves exist, but reversed; and we have besides a curve from one canine to the other which is convex on the labial side, while the molars have, on the contrary, a concave curve.

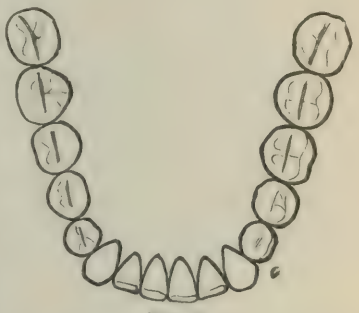


It must be remembered also that the length of the teeth varies considerably in different individuals.

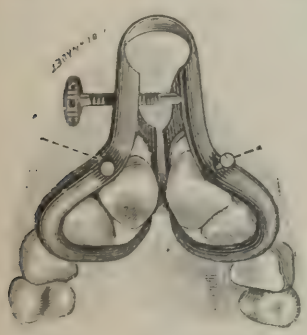
For these various reasons it is easy to understand the difficulties in the way of a perfect adaptation of the instrument to all mouths; hence the advisability of having several to suit different cases.

I enclose several illustrations of the instrument in position upon various teeth.

The one upon the incisors has two small screws to adapt it to the varying lengths of teeth, and so to raise the instrument by letting these small screws press upon the ends of the teeth that the points of the separating claws shall not impinge upon the gums.



No. 3.

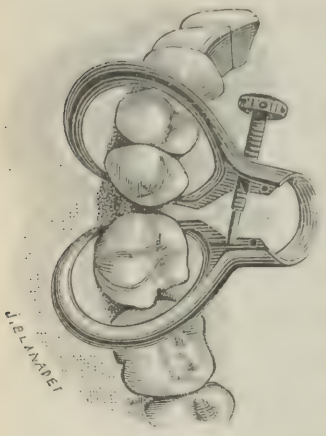


No. 4.

The one showing the cavities in the molar and bicuspid is shaped so as to rest upon the ends of the teeth, and the pointed ends of the claw are just the length of a short tooth below the middle of the bow.

The last illustration shows a wider bow further removed from the cavity to be operated upon, out of the way of all instruments and with the points of the claws a little further from the middle

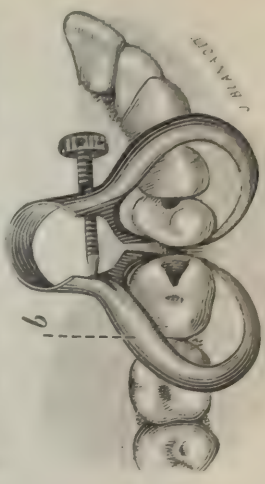
of the bow, thus adapting it to lower back teeth and to long upper teeth.



No. 5.

The distance between the points of the claws varies according to the class of teeth it is to be used upon.

For incisors the points would have to be from 4 to 5 millimeters apart, while for molars they might need to be 7 or 9 millimeters, or even more in some cases.



No. 6.

I find that in many cases, if the teeth to be operated upon can be separated with cotton or tape for one or two or more days before the operation, the screw separator being then applied holds them steadily and firmly while the operation is being performed, and so painlessly that patients often go to sleep during the operation.

Of course one is enabled to go on much more rapidly and with less fatigue to both parties.

When the fillings are in, another turn is given to the screw, to obtain room to finish the cervical margins by means of Dr. Smith's disks, that cut only upon the outer margin, and by the use of polishing tapes and sharp lancets.

Upon taking off the separator there remain two knuckles of gold or other filling that touch each other, like two apples side by side, over which the floss silk and the brush can pass readily to completely cleanse the entire circumference of the filling, while these two contiguous fillings, restoring the original or the ideal form of the tooth, effectually prevent the disagreeable or painful crowding of food between the teeth and under the gums to their detriment.

Since writing this article, and after it was in type, Dr. Perry has for the first time showed me his improved separator. I find that intended for the incisor teeth such a marked improvement upon my own form, that I desire most emphatically to acknowledge its superiority.

COCAINE HYDROCHLORATE.

BY A. M. ROSS, D. D. S., CHICOPEE, MASS.

In all that is being said and written upon cocaine hydrochlorate, there is little or nothing referring to certainty about the strength of the solutions used; about exactness in preparation of the different per cents. of the alkaloid to water. Now I believe that the first requisite in forming an opinion upon the merits of any remedial agent, or the properties of any drug, is a reasonable certainty of its purity, and the reliability of its solutions, and I don't know of anything where such knowledge is more important than upon the subject of cocaine solutions. The drug is very expensive, and the temptation may be considerable to label weak solutions, intended as an obtundent of sensitive dentine, more concentrated than they really are, which may account to some extent for the different results obtained by different dentists using the drug in similar solutions.

A proper way to obtain cocaine hydrochlorate is through a perfectly reliable pharmacist, who will then prepare solutions in any strength desired.

I procured an eight per cent. solution of one of our best pharmacists, who obtained the alkaloid direct from Merck's agents. To forty-six drops of distilled water four grains of the drug were added, and to the whole I had added one grain of salicylic acid, and as I intended its use simply upon dentine, I would not have it filtered. The solutions will very quickly spoil by fermentation if some antiseptic is not used. If salicylic acid is used in quantity just enough to prevent fermentation, it will be found unnecessary to prepare fresh solutions at short intervals.

The first case in which I applied this solution was that of a very nervous and irritable person, who was wholly unconscious of my attempting a treatment of sensitive dentine. The cavity was a proximal, and before using the cocaine the dam was adjusted, and the most sensitive spot in cutting the dentine found to be at the cervical wall. The application of cocaine for ten minutes rendered that locality, to a *limited depth*, insensible, but toward the cutting edge of the tooth, and particularly at the junction of dentine and enamel, there was no apparent diminution of sensitive-

ness. A similar result was obtained in other cavities in the teeth of the same individual, who throughout the course of experiments was kept in ignorance of my attempting such treatment. The importance of proceeding in this way will be readily understood. I came to some conclusions upon what I learned from this case, that I have had no reason, in some half dozen cases since, to alter in the least. We know that the terminations of sensitive nerves manifest irritability more than at any point along their course. We know that at the neck of a tooth the dentine possesses more living matter than at any other point. The greater the amount of living matter the more complete will be the anesthesia. The more remote from the origin of dentinal fibrillæ, the greater the irritation of these fibrillæ from external causes, and the less the ability to produce anesthesia, owing to the remoteness from the ganglionic cells of the pulp in which these fibrillæ arise.

I believe that the most satisfactory *immediate* results can be obtained from the hypodermic injection of a two or four per cent. solution, and this I tried in one case, but the subsequent result in the tissues of the infra-orbital region of the cheek, the tip of the nose and the same side of the upper lip, were interesting to be sure, but rather disappointing to me and highly discouraging to the patient. There was twitching of the affected muscles more or less continuous for twelve hours, and a very annoying tingling sensation through the parts, followed by considerable soreness, which was most marked near the infra-orbital foramen, and a slight discoloration of the surface over this locality, that lasted two days. The solution that was used in this case was four per cent., freshly prepared and filtered, and it contained no antiseptic, or anything excepting cocaine, and I do not think a particle of air was introduced with the solution. According to the graduations on the syringe about six minims were introduced. A portion of this same solution had been used a day or two previously in a case of tenesmus, with the best results; a case that could be controlled and treated in no way without some anesthetic, and there followed no unfavorable reaction from the use of cocaine. If this drug proves very unsatisfactory as an obtundent, used locally upon sensitive dentine, it is going to be very useful in other ways. The dissecting of the tissues about the roots of teeth to the alveolar process for the purpose of banding them, or to grasp them with

forceps for removal—very often the most painful part of the operation—can be performed painlessly, or nearly so, with this agent, A root that appeared under an artificial plate, and which had caused some inflammation, was easily removed by first drying the surface about it and applying for ten minutes the eight per cent. solution. The patient in this case knew what was being used, and declared fully five minutes before the parts were fully effected that the hands and feet felt peculiarly numb. It doesn't seem as if this effect was produced by the drug, as the coffer dam of paper lint was perfect, and yet consciousness of what was being applied and apprehension that it would not be efficacious does not account for the effect.

THE ELECTRIC LAMP IN THE MOUTH.

BY W. H. TRUEMAN, D. D. S.

I have been using a small electric lamp in the mouth a little over a month, the mounting of which is home-made. A wooden case encloses the bulb, leaving a space of one-eighth of an inch between the wood and the glass, which is packed with asbestos; a hole three-eighths of an inch in diameter is made in the case directly opposite the carbon loop, through which the light passes. The non-conducting case was suggested by the heat developed when the lamp was in operation. It not only protects the lamp from accident, but also preserves the patient from injury should it come in contact with sensitive tissues, or accidentally break while in the mouth. Is there not some risk in using those now on the market which are either not protected at all or only imperfectly so?

The case of mine becomes uncomfortably heated if kept in continuous use more than a few minutes at a time, while it soon produces a dryness of the mouth that is decidedly unpleasant.

Now, as to its practical usefulness. It is very convenient to illuminate the back part of the mouth on dull days, or towards evening, and a help to some extent in making examinations. It shows some defects between teeth that are otherwise difficult to see. Light can be readily thrown into some cavities which would be difficult to illuminate by any other means, and in various ways it is a handy instrument to have around.

It attracts a great deal of attention. Patients think it a sure sign that the doctor keeps "well up to the times," and is ever ready to utilize all the improvements science provides, which he thinks will add to their comfort or make his services more profitable, "regardless of expense." They talk about it; that makes it an advertisement not to be despised, and one that infringes no rule of professional ethics.

It promises to be useful in diagnosing the condition of pulps in doubtful cases, and also in detecting decay on approximal surfaces. In its incipient stages I find its assistance in these cases very slight.

Held behind the gums, especially of the anterior portion of the lower jaw, it produces a beautiful and unique effect. The tissues seem quite translucent, and aided by a little imagination, we seem to see the roots of the teeth down to their very apex. Some say that they can see perfectly the condition of the pulp, whether it is congested, dead, or dying; if the pulp canal is filled, they can see how far the filling extends, and are able to judge whether it has been perfectly or imperfectly done. This I cannot do. The tissues *seem* translucent, but they are so illuminated, or so affect the light, that it seems able to shine around obstructions. I have examined teeth before applying arsenic, after the arsenic has been in position some time, and after it has been removed and the pulp found to be dead, and have seen no difference whatever, through the gum, between the tooth in fault and adjoining teeth known to be in a healthy and normal condition. After the pulp canal has been filled, there is usually a little shading extending towards the apex of the root, but this does not extend one-third as far as the root is known to be solidly filled. Even roots with a gold pivot extending nearly to the apex do not show its presence more than perhaps one-third of its length. In some instances the opacity of the pulp canal is seen more plainly than in others, but the fact that in a notable number of cases its condition cannot be detected at all, lessens the value of the electric lamp as an aid to diagnosis. In cases where the condition of the pulp has been in doubt, it has so far proved useless, and these are the cases where aid is most needed.

In detecting approximal decay its indications are uncertain. I have found decay where the light has shown no evidence of it, and

have detected it by the light where other means have failed. It *does* show the presence of tartar under the margins of the gum, unmistakably.

I would suggest, in conclusion, that all lamps for dental use should be provided with a switch in the handle, so that the lamp may be lighted only when actually needed, to prevent overheating. A convenient arrangement should also be provided for regulating the current, preferably in the handle. Regulating the intensity of the light is an important matter; many points are plainly seen when the light is rather dim that cannot be seen at all in an intense light; and many points are brought out by varying the intensity of the light during the examination.

A few inches of German silver wire, say fifteen inches of No. 28, so arranged that all or a small part may be included in the circuit, will, by its resistance, give all the latitude needed with the battery usually used for the electric mallet.

COCAINE AS A LOCAL ANÆSTHETIC IN THE OPERATION FOR CLEFT PALATE.

BY ROSWELL PARK, A. M., M. D.

Professor of Surgery in the Medical Department, University of Buffalo.

While I am well aware that there is no longer extreme novelty attached to the use of cocaine, I have yet to learn that it has been used as a local anæsthetic in an operation so trying and prolonged as that for the relief of extensive fissure of the hard and soft palate, and consequently think it worth while to report the following case:

J. H., age 22, of Medina, N. Y., was sent to me with a view to the relief of the condition of the roof of his mouth. I found a very typical but not remarkably aggravated fissure, involving the entire soft palate and the posterior half of the hard, the cleft being in the exact middle line, so that the uvula was evenly divided. There was a certain amount of naso-pharyngeal catarrh, with some chronic enlargement of the tonsils, but nothing to contra-indicate operation, toward which all indications pointed favorably. The young man was afflicted with a distressing stammer in his speech, mak-

ing at times a grunting sound almost painful to listen to. Added to his hesitating speech, the peculiar nasal tone, due to his oral defect, caused him to be seldom or never heard with pleasure.

Jan. 17th, 1885, in my surgical clinic at the Buffalo General Hospital, I operated before my class. At precisely 11 A. M. the first application was made of a four per cent. fresh solution of a freshly procured specimen of Merck's manufacture. This was painted over the parts with a camel's hair pencil. The application was repeated, at ten-minute intervals, till four had been made. I began to operate at 11.35. First of all, with a hypodermic syringe, I injected about four minims of the same solution in a portion of the soft palate, on either side, in a location which I knew I should not have to interfere with during operation. The ordinary and recognized procedures were then gone through with, with only such delays as were required for freeing the mouth and throat from blood, or for resting his mouth for a short time from the constraint imposed by the mouth gag. Twice during the procedure was the solution brushed on, after wiping away blood and mucus.

Paring of the edges of the fissure, the lateral incisions necessary for uranoplasty, freeing the periosteum from the bony palate, tenotomy of the tensores palati, section of the muscles composing the faucial pillars, and introduction of sutures, were all performed with such deliberation as would ensure thorough work and permit demonstration to as many as could see the steps of the operation. Four silver shotted sutures and three of silk were introduced, by means of which the fissure was perfectly closed, and without undue tension. The entire operation, including "waits," occupied about an hour.

I will not say that the patient felt *no* pain, for when the soft parts were loosened from the hard palate, and when the faucial pillars were cut he certainly squirmed in an excusable way, nor can I institute any relative test as to the exact amount of his suffering, since he had never before been subjected to any operation; but I am convinced that acute sensibility was greatly obtunded, and the whole proceeding made more expeditious and less painful than it would otherwise have been. Nothing but a general anæsthetic could obviate the painful annoyance of having the jaws so widely separated for the greater part of an hour, and this discomfort could not be spared him. At the close of the sitting he was rather faint,

but a part, at least, of his faintness might well be ascribed to the amount of cocaine introduced through the hypodermic needle.

Altogether, the experiment, from a physiological view alone, was not without interest, while clinically it was quite gratifying.

I may add that the result was perfect union of the whole line of sutured edges, the stitches being removed on the fifth and sixth days. Anatomically the result is therefore perfect; but I have little hope here, or in any similar case, of remedying the peculiarly disagreeable nasal tone of the speaking or singing voice.

Reports of Society Meetings.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

A regular meeting of the Society was held at the residence of Dr. D. C. McNaughton, Jersey City, on the evening of Monday, Dec. 15, 1884. After the transaction of the usual routine business a paper was read by Dr. C. A. Marvin, upon the "Treatment of Defective Teeth During Pregnancy." (See page 115.)

DISCUSSION.

Dr. W. H. Atkinson—There is very little to be said respecting the sound sense of the mode of management prescribed in the paper, but as to the facts that it postulates there may be room for discussion.

There are no statistics that can be relied upon concerning the increased or the lessened sensibility of teeth in the condition spoken of, but good sense and observation tell us that when the functions that are natural to the body are well performed, we have the highest type of health.

The paper refers briefly to the fact that some pregnant women are able to bear more pain than others, or than they themselves could do in a non-pregnant state. I know that to be a fact. But as to general principles, and our ability to determine whether irritation depends upon or coincides with this state, we must be better diagnosticians than most of us are, to tell exactly why that irrita-

tion exists. I have practiced obstetrics, and I have known of other men practicing obstetrics, who were unable to determine whether or not a woman was pregnant, when she was seven months advanced. So it is our want of ability to understand exactly what is going on in the system, that prevents us from being able to determine what is the extent of any special kind of irritation that we may see in the patient, when that irritation is greater than it was under other circumstances. The best results I have seen from the use of cocaine was in the case of a pregnant woman—at least I supposed she was pregnant. By applying cocaine I succeeded in filling four very sensitive cavities in the buccal walls of the right superior bicuspids and molars. I used a four per cent. solution, without putting on a rubber dam, and the patient thought I was only getting ready to put it on when the burring was all done. I have had the same impression that Dr. Marvin expresses when he says that it is best to temporize, and I think in that case it was wise to do so. The right superior bicuspids and cuspids were in a very uncomfortable condition; one of them was pulpless, and the gums were swollen and inflamed, so that when the lady ate on that side they bled. It took several days to reduce that tumid condition. My mode of procedure was to dry the gums as well as I could with bibulous paper, and then cook them with the saturated solution of salicylic acid and alcohol, so that they would be whitened. I think that was repeated every other day for four or five sittings. I succeeded in temporarily filling some of the teeth that were not so tender. I was dressing them, as I often have done before, with oil of cloves, which is now being represented by what is called eugenol. It is an oxygenated oil of cloves. When I got them where I could handle them well I attempted to excavate, and the lady complained of the pain. I said I had just learned about a new article which was said to be serviceable in those cases, and I would try it. She asked me to wait another day. I did wait, and finally applied cocaine with the result I have stated.

I have too much respect for the observation of Dr. Marvin, and for his goodness of heart, to question any of the statements that he makes, and I only offer these remarks as a suggestion that we do not reach causes. We get at antecedents and sequences. It has been the difficulty of my life to get rid of the false teaching that I received in my instruction as a medical man. Things were

called causes simply because they had preceded the conditions that were present. If I were to deal with causes at all, I should keep it in the plural, and not say *cause*, for the real cause none of us knows anything about.

I think civilization is chargeable with the deterioration of the teeth and of the race, and a false civilization at that; a false sentiment which respects and defers to the idea that it is a shame for a woman to be pregnant. If women were taught that this is their glory, they would carry their burden joyously, and with a face flushed with pride instead of shame. It is that false sentiment that deteriorates women physically and morally.

The manner in which women clothe themselves has been a very great mistake. There is a constant crowding of the contents of the pelvic region. My first practice was in an agricultural district, and some of the finest children I ever saw were produced there by mothers who worked up to the day of their confinement. Some of them worked during the day of their confinement, waiting upon themselves and attending to their household duties right along.

If we are really interested in our patients, there is not one of us so bad but that he will respect them, and feel when they flinch. Any dentist who glories in extracting teeth when a patient shrinks I would expel from the profession, and make it impossible for him to exercise unkindness and severity upon those who were so unfortunate as to fall into his power. What the doctor says is very true, that many noble women have suffered untold agony on account of their children. Nothing but moral strength can enable them to bear up under their terrible burden. When we deal with this question to the exclusion of its moral side, I feel a little tender, and a little angry; and when I remember to whom we owe our false teachings, I can hardly enter into a discussion without the latter feeling; for the older I get the more I feel like departing from the instruction I received in my early life.

If I have anything to say to a young man it is this: that he let his relations with his patients be as they would be with his mother or his sister, whether pregnant or not. I endorse most heartily my beloved brother's statement, when he says that we should remember that there is such a thing as exalted sensibility in women, and when they shrink we should give of our magnetism; not in any namby-pamby or demoniac way, but in its diviner and more

fraternal and childlike manifestations—it is the heart that controls, not the head. The head dies. Give me the man with the big heart, and even though he is an ignoramus at the beginning, there is hope for him. And I don't care how big a man's head is, or how well cultivated his intellect, if he is heartless, for God's sake pray that he may never enter such a calling as is ours.

Dr. C. S. Stockton—This subject has been so eloquently and wisely, and with such sound common sense discussed in the paper, that there does not really seem to be anything more to say upon the subject. I am sure I have been repaid for my journey here to-night, in hearing this paper.

There is a false civilization, and a false state of society, perhaps; but we cannot help but admire the modesty of a pregnant woman who shields her condition, and who presents herself to the world in that state with as little show as may be. It may be a mock sentiment that causes women to present themselves or to shield themselves when in that condition, but there is not a man among us all, I think, who will not say that she is a true woman, and possessed of a modesty that becomes her. This is a condition of which a very wise gentleman once said, that if the man bore the children there would be but three persons in a family. And that is true; and we ought to have all the consideration, and all the patience, and all the love that our hearts can extend to women in this condition, who may come into our hands. We do not know a very great deal about it, for, as Dr. Atkinson has said, there are no statistics on the subject, but the fact seems to be that all women are more sensitive when in that state, and more teeth are lost than there would be if women did not bear children. The old saying, "for every child a tooth," grows out of the fact that women's teeth do decay more rapidly during pregnancy than they do at other times. The question resolves itself largely into a matter of hygiene, which I freely confess I know but little about; I wish I knew a great deal more. I remember an instance in which the wife of a physician was in my hands during her first pregnancy. Her teeth decayed very rapidly, superinduced by her condition. I could only do temporary work, as I do in all such cases. I consulted with her husband, and I said to him, "the next time your wife is in such a condition take better care of her health. You know what she has to support, and what she has to supply, and you can by your

wise and judicious treatment save her a great deal of trouble." During the next two pregnancies he did so, and it was a marvel to note the contrast in her health, and also to see the difference in the teeth of those two children. They do not look as if they belonged to the same family.

Dr. Meeker—I have listened with a great deal of pleasure to Dr. Marvin's paper, and also to the remarks of Dr. Atkinson. Both of them have mentioned one fact, the exercise of mesmeric force or magnetic force on the part of the operator, and I judge from Dr. Marvin's long practice and his remarks in the paper, that he is in the habit of exercising that force. I would like to hear from him a little more concerning it, and whether he notices any difference in his own nervous exhaustion when operating for patients of different nervous temperaments.

Dr. Marvin—Yes, I certainly do. I have not any formula to explain the exercising of this force, and I do not claim any special potency in that direction. I simply speak of the fact, which was first brought especially to my notice by a remark made by one of my patients, a nervous young woman, not married, and therefore outside of the range of the discussion to-night; but she was a very nervous woman. She said this to me: "I do not know why it is, but whenever I am in your chair and under your hands I seem to get a kind of sustaining force from you that I never have at any other time." I cannot analyze it; it is one of those mysterious things that are inexplicable, and yet we so often see the results of this influence that we cannot deny its existence. My own feeling at such time is one of as perfect nerve balance as I am ever in; a calm, quiet state, so that when there is any exhibition or manifestation of pain I use no harshness, no controlling words of severity, but maintain an even, quiet bearing toward my patient; at the same time I unconsciously seem to be giving off from myself a sort of power or influence which weakens me, so that I am completely exhausted when I am done. Perhaps you can explain it; I cannot. When I am engaged in a long operation I seem to be under a high tension. I feel that there is a sort of emanation of force, accompanied by a degree of tension which I cannot explain, but all the while there is exercised an unseen, unexplained influence upon my patient. At first I did not do it with the expectation of accomplishing anything by it; it was simply from intuition; I did not think anything about it

particularly. Then I began to look at the subject a little more, and I found that the more quiet, gentle, calm and deliberate I was, the more influence seemed to be exercised over my patients, and they seemed to be enabled more easily to endure painful operations. They must see no excitement in your face; all about your manner must indicate perfect poise; you are gentle, yet firm, with a consciousness that you are doing the right thing, and you feel that it is proper for them to endure it. Your firmness and calmness impresses your patients; they are taking from you some force that I cannot explain, but you feel it when you get through; you feel like going to bed.

I want to say that I do most heartily thank Dr. Atkinson for the expression he has made of a sentiment that touches me. I do not know that I ever feel a more tender sentiment in my mind, or a more tender feeling in my heart, than I do for a woman when she is in that condition. It is a perfectly proper and holy feeling, if there ever was one. A man would be worse than a beast had he any but the right sort of feeling for a woman who is pregnant, no matter what he might be at another time. There is a peculiar feeling of tenderness that comes over me at such a time for a woman in that condition, which I cannot express. I cannot understand how a man could have any other than the most pure and tender feeling toward a woman who is passing through that period of delicacy and trial, which he can never experience. There is something that appeals to the best instincts of man's nature when a woman comes into his hands to have an operation performed, when she is in that delicate condition. What I have stated in the paper was not based upon statistics; I do not know that there are any; it is simply drawn from my own experience. I have noticed a great difference in women in respect to dental operations. Some can bear them better than others; but the same women seem to be more sensitive at such times than they were before. My experience has been of the nature that led me to conclude, long ago, that when pregnant women come into my hands to have their teeth attended to, or women I suspect to be pregnant, it was better to do only temporary work, and I say to them: "Madam, I think the best thing to do will be to fill your teeth temporarily; for the present I will put them in a safe condition, and by and by you will be better able to have the permanent work performed." If the woman is

acute she will understand it, and if she does not it is no matter. It is said gently, of course, and she usually understands and appreciates it. I think that course better for the woman, better for her teeth, and better for the dentist, aside from the matter of expediency. If the dentist shows himself regardful of a woman in such a condition, he will make a ten times better impression upon her than he would by showing himself regardful of her feelings in any other circumstances. There is something about that evidence of consideration that goes down deep. It is just the same as with a husband who shows his consideration at such a time; it is better than forty manifestations of tender feeling at any other time. So if a dentist shows himself tender and regardful of women who are in such a condition, he will do himself a great benefit, as well as do the right thing by them.

I wish I could say something more regarding the matter of mesmerism, or magnetic force. It is something that we are occasionally inclined to ridicule, and we cannot explain it, but it is a fact. The first requisite is to keep yourself well poised. If a man is shaky himself, he cannot exercise an influence over another. If he keeps his head right, his purpose high, and his knowledge of what he is doing true, he can exercise an influence on his patient that is marvelous. I have seen it done many a time, in a way that was surprising. But you have to pay for it afterwards ; you find yourself quite exhausted.

Dr. Meeker—I am glad to hear Dr. Marvin's explanation. I remember that a few years ago I read a paper before our State society on that subject, and I was so completely squelched by our good friend Dr. Atkinson, that I have always been afraid to speak about it again. I think some of my brother members also gave me a severe talking to. Still it has been a very interesting subject to me, simply because I have frequently noticed the wonderful effects of this exercise of mesmeric or magnetic force. I do not know whether the same fact applies to other people, but I know that I have exercised that influence, and I have felt very bad, at times, after a long sitting, so much so that all the ambition was taken out of me, and I was unable to work. On some patients I have a very strong influence ; but for the past few years I have tried to avoid the exercise of any such influence, even to calm people who were very nervous, because the strain upon me was too

great. I feel satisfied, from my own experience and from the statements of others with whom I have talked upon the subject, that there is such an influence of the operator upon his patient, some possessing it in a greater degree than others.

Dr. G. S. Meigs—On the subject of personal magnetism I have in my mind's eye two instances where the phenomena are directly opposite. I have a young friend in Philadelphia who is a painter, quite an artist ; she is not married, is in poor health, and has enough ambition for two or three people, and if she is hurried by her customers with her work she is apt to do in a week what should require two or three weeks' time, and then, as a consequence, go to bed for four or five days. That girl has a wonderful influence over a crying child. She rarely fails, by taking a child in her arms and talking to it, to stop its crying very quickly. I have asked her how she does it, and she says, "I mesmerize them ; but I do not like to do it, because it is exhausting to me." She is a girl who is without any special force of character at all, and you would not dream that she possessed this power. In opposition to that case I have a friend, a physician in New York, who is really one of the brightest and best educated men to be found anywhere ; what he knows he can express in the quickest and clearest manner, and he is an accurate and elegant writer, but when a patient comes to him there is not a particle of sympathy between them, and this unsympathetic manner is so marked and disagreeable that he does not succeed very well in business.

Dr. Watkins—I want to express my thanks for every word that Dr. Marvin has said in regard to the magnetic influence of the dentist over his patient, for I think it is wholly true. I believe it is also true that the patient has a very marked influence on the dentist. I have noticed a great many cases in which the patient was nerved up, and seemed to be strengthened by the operation, and I have wilted ; and I have seen other cases where it seemed as though I could work a week without fatigue, and my patient would lag and be completely used up. I have seen patients in a couple of hours' sitting all fagged out ; and in other cases after a two hours' sitting I would be fagged out, and the patient would be fresh.

In regard to working upon children, I have never known why it is that I have been able to get along with children with so little

trouble. I do not know now whether or not it is due to magnetic influence, but I always make a practice of being very firm, and yet gentle, with children, and I think my children patients are my best ones ; they usually behave beautifully.

Dr. Meigs spoke of personal magnetism. I was called the other evening to see a patient, the wife of a prominent dentist, who has been a terrible sufferer. When I arrived at her house I found her completely mesmerized ; she did not recognize me for some time. An old gentleman had simply taken here hand in his and rubbed her forehead, and she had become so thoroughly mesmerized as to be completely under his control, and did not know anything. I suppose I was in the house twenty minutes before I was able to do anything to give her relief. After the mesmeric influence passed away the pain returned. I then proceeded to apply remedies.

In regard to cases of pregnancy, I think that is just where cocaine is destined to be a grand remedy. The other day I had a case of a person who is not very intelligent. Perhaps some of you have noticed that in persons who are lacking a little in intellect, the teeth are very sensitive and the saliva stringy. I put the rubber dam on a superior cuspid and two biscuspids, examined the cavities and found them quite large. The cuspid was so sensitive that she could not bear to have me touch it at all. I put some cocaine in the tooth, and went to work on the others. After a while, when I happened to think of that tooth, I returned to it. The cotton conveying the cocaine was entirely dry. I put in my excavator and began to cut away, without causing a particle of pain. After excavating a minute or two a little sensitiveness was developed, and I put in more cocaine and went to work at the other teeth. After completing them I went back to the cuspid, and finished excavating it without any further trouble.

Dr. Marvin also spoke of the use of gutta-percha as a temporary stopping. I have found that pink gutta-percha, that is the common base-plate gutta-percha, is an excellent article for that purpose. I have heard a gentlemen who is here make the remark that he had noticed that the pink wore very much better than other gutta-perchas; that is my experience. I have used it a great deal; in fact, have gotten out of the way of putting in the other gutta-percha at all, unless it is simply a temporary operation, for it seems to wear so poorly. With pink gutta-

percha I can make a filling that will be permanent. I saw a case to-day where I had, three and a half years ago, filled with pink gutta-percha a cavity in the posterior surface of a lower second bicuspid, including fully one-half of the crown surface, there being a good articulation, and that filling to-day shows scarcely any wear at all. The patient is a gentleman twenty-four years of age. The pink gutta-percha does not appear to decompose in the mouth like the other kinds, that seem to get soft and spongy and almost rotten on the surface, so that you can put in an instrument and pick them all to pieces. It seems to become more dense, and you have quite a job to remove it. The fluids of the mouth do not seem to penetrate it as they do the other kinds, and it wears better. Seven years ago a gentleman told me that he had in his mouth a filling of that kind that had then been in twenty-six years. It is now thirty-three years since it was inserted, and it remains in, and is in such good condition that I do not think there is a dentist here who would remove it. It is in the labial surface of a lower cuspid. If any of you have not tried pink gutta-percha I wish you would do so. For cavities in the buccal surfaces of molars, or almost any surface of the wisdom teeth, it makes a capital filling.

While Dr. Atkinson was speaking of women who during pregnancy were ashamed of their condition, I could not help thinking of a journalist who published a paper in Montclair a few years ago. He was very enterprising in gathering and publishing the news of the town, and sometimes the people thought he gave rather too many items. In one of his issues he had a little squib saying there was a party at a certain house, and that there were sixteen married ladies present, thirteen of whom were in that interesting condition in which all good women love to be. It is needless to say that he was very unpopular, and that the paper died early.

Dr. Atkinson—One thing further in the way of a little amplification of the idea of imcompatibility. I had a patient who came under my care in the most distressing circumstances. I did a large amount of work for her, and after she had been twenty-four days under the operation her husband came to me and said: "What have you been doing to my wife? she never before has had an operation performed in her mouth

without being ill for three or four weeks in consequence. Now instead of coming home and taking to her bed as she has been accustomed to do after such operations, she makes her toilet and goes out and makes visits in the highest spirits." That patient is the type of a great number that I have had, and in these cases I was not exhausted, but could work vigorously during the entire light of a long day, and do satisfactory work, and we were better and stronger when through than when we began. That smacks a little of the marvelous, I suppose, but it really is instructive to me. I call that compatibility between patient and operator. I would very much prefer to have compatible patients who coincide with me, than to have to force them to submit to my ideas and dictation, or myself succumb to their views. There will come a time when we shall understand these things, and be enabled to comprehend them in a better light, and to handle ourselves and our patients more wisely and successfully. Dr. Marvin says that a certain influence is exerted by the operator upon his patient, but what that influence is does not appear so clearly upon the face of it.

Dr. Luckey—We have heard a great deal about mesmerism tonight. While I do not propose to try to explain what is the force that goes out from the operator to the patient, I do know that one reason why patients can be controlled easily and thoroughly is, that on the face of the operator is stamped the fact that he has perfect confidence, and knows just what he is going to do. They see in his face knowledge and ability ; they see that he knows positively what he is about, and that will gain for any operator the confidence of his patients. But if the operator is hesitating in his answers to their questions, or vacillating and uncertain as to what should be done, he loses the confidence of those who come to him, and often fails to make a patient. I think this positive and unhesitating manner will account for the confidence with which patients sit down and submit to operations at the hands of some operators.

As to a man feeling tired, worn out, that is not so often due to the outgoing of mesmeric force as to the fact that the operator gives to his work so much intensity of application ; he concentrates his whole being in the effort to perform the operation successfully, and when he has finished it, and the tension is removed, he feels languid and depressed. That condition may be owing to the exercise of mesmeric power, but I think it is rather due to intensity of application.

The temporizing treatment of teeth in the mouths of pregnant women is an excellent thing. But I do not confine it to pregnant women; it is properly applicable to any woman, or any man, whose teeth are in a hypersensitive condition. In all such cases I think the best practice is to temporize, filling with either gutta-percha or phosphates, until the teeth are in a less sensitive condition. If you fill a tooth when it is very sensitive, it is very likely to give trouble by bringing on tooth-ache or abscess, and its attendant troubles.

CHICAGO DENTAL SOCIETY.

FEBRUARY MEETING.

Reported by A. E. Baldwin, M. D.

The paper of the evening was read by Dr. J. H. Wooley. His subject was "The First Permanent Molar." He premised by saying that the greatest tendency of professional men is to hobbies and narrow views. Opinions should be the result of careful research and study. The subject of the paper gives rise to many opinions. In the brief time allotted to me, deserved attention cannot be given. I can hope to bring out but few of the many points. To successfully elaborate this subject requires much study and long observation.

The jaws and teeth of children are formative material, to be modeled by us. To get good results requires perseverance and toil. Mistakes are often made by us all. I would compare our subject to a waif in the street, ignorantly neglected as to its value. The condition of the teeth is from heredity, pre-natal influences, combined with condition of the child before and after eruption. At the time of its eruption physical causes may disturb its normality, as in systemic disease; also that the tendency of the age is to develop in the child the highest type of nervous hyperæsthesia. The brain develops most rapidly at this time, and at the expense of the physical body; even the bones and teeth suffer from this cause. These facts, aided by the brain-forcing the child receives, show plainly why diseases of childhood retard physical as well as normal tooth development.

This tooth is often ignorantly neglected by parents, supposing it one of the temporary set; they are erupted at a time when often many of the temporary set are decayed, and the mouth in a condition to advance decay. If parents knew of the time of its eruption, and would give their children proper dental care, much less trouble would be experienced.

This tooth, according to Dr. Tomes' record of three thousand extractions, was removed in at least one-third of the cases. I hardly consider this a fair test, as a majority of these occurred in hospital practice. Many believe them to be very short-lived, from a consideration of the circumstances of their eruption, but think they should be preserved till the appearance of the twelfth year molar. Many also think them more liable to decay, claiming the time of eruption and condition of the mouth at the time, as proof.

Some claim that by removal of these teeth space is gained for correcting irregularities and preventing decay in adjoining teeth.

In my opinion the tooth, appearing as it does while many of the temporary teeth are still present, added to the carelessness of parents, renders the loss unnoticeable. Usually the dentist only sees the patient when acute pain is experienced in the tooth. Perhaps the decay is of slight extent, and easily filled. Often, owing to restlessness of patient, the work is hurried and necessarily slighted, resulting in failures. Dentists often think themselves irresponsible in case of failure, at least to the patient. This is very wrong. I think his work should be done with great care, and the parent should be told of the importance of attention to these, as to other teeth. Many satisfy themselves by thinking that by extraction of these teeth the second molar will move forward, and the bicuspid teeth backward, closing the space, and thus saving from proximal decay. I believe this occurs (*i. e.*, preventing decay) rarely, and that the law of the movement of teeth is that they are prone to a *forward* movement, only very exceptionally moving the opposite. Dr. Arthur says that in these cases of extractions for crowded arches, mechanical means must be resorted to, and cites a case where, following extraction, the second molar moved forward, closing the space entire, and that in this case proximal cavities were formed in all the teeth. I do not think they should ever be extracted for correcting irregularities, and I would question the statement that irregularities are due to lack of room. Dr. Kingsley thinks, outside

of heredity and mechanical causes, that lesions or innervation of the trigeminus nerve cause these irregularities; that it is interference more or less prolonged, operating centrally with one of the prominent functions of that nerve, He admits that this is very difficult to prove, save by secondary phenomena, which must originate from such a source. As we all know, this nerve governs the supply of nutrient material to the parts it supplies. He (Dr. K.) farther thinks that at formative and eruptive stages of permanent teeth they are supplied with an independent vital or nerve force, which builds them up regardless of the slower development of the adjacent parts, thus crowding them into the undeveloped maxilla, and they forever retain this disordered arrangement in which the formation of the crown was formed, and they remain in a fixed position, regardless of subsequent growth of the jaw; for he says that it is one of nature's laws that at complete development function ceases.

Dr. Tomes also says that the teeth are not placed in a bony position, ready-formed; on the contrary, the bone surroundings, primarily, are absorbed, and when in position new bone is formed about them. He also says the size of the dental arch is not fixed by the size of the jaw. This last statement of Dr. T. has been confirmed by others, and in my own experience, in a great majority of my cases of irregularity, I find plenty of room in the jaw to arrange teeth without extracting our first molars. Dr. Lord believes they should not be extracted, and agrees with Dr. Arthur, that these are the most important teeth in preserving the size and shape of the jaw, and preserving the teeth in natural strength and position, and that often after their extraction we see such changes in the position of second molar and bicuspids as to interfere with normal mastication, and thus injurious force is brought upon front teeth. He thinks attention to them will prevent decay. With small cavities treat the same as any other tooth; with badly decayed teeth, break down to the solid borders, and fill, but do not restore.

I believe that in the extraction of these teeth a change is made in the expression of the face. In regulation we have to consider facial expression, and the effect of the shape of the arch on the voice. The wider the arch the fuller and rounder the tone. Dr. Black says that one great point of usefulness of this tooth is that it keeps the jaws in their relative position during the process of second denti-

tion. He thinks this a very important fact—a fact noticeable when lost prior to eruption of the twelfth year molar, and thinks that if kept till the child is over twelve the chances are good for permanent retention. He farther says his study of the comparative liability of decay occurring at different periods is, that these teeth are attacked oftener for two or three years after eruption, and after that less often; and that if first and second molars are normal at fifteen, the chances are better for the first than the second. Posterior proximal decay occurs on second much oftener than on the first molars.

Now, I do not lay the blame of all mal-positions to the foregoing causes, for there are other reasons. Some claim that this tooth is frail. It is my experience, in many years of observation and treatment, that if as zealously cared for as others they can be saved as well. Should always recommend the use of the dam in thorough examinations of these teeth, often being enabled by so doing to locate slight decalcification, and to fill with small labor what, if neglected, would rapidly ruin the whole tooth.

In regard to mesial surfaces, if the temporary molar is in close contact cut away its distal surface, and if the mesial surface is superficially decayed remove and polish. Whether at any time you extract any or all of these teeth, it is rare that existing evils are removed.

Now, a few words in regard to treatment of these teeth. I find that experience aids greatly, and I have learned that it is erroneous to treat as in other teeth. They require greater care. I now, in large cavities, sensitive, without pulp exposure, fill with one of the cements, and let it remain months; first in filling, flowing the cement over the bottom of the cavity, then, as it hardens, finish with the same mixed harder. When the filling begins to wear, I remove around the margins and surface and fill with material best adapted. I think these teeth more sensitive to thermal changes than any other teeth. I believe also (and would emphasize this), that the pulps of these teeth are more sensitive for the first few years after eruption than any of the other teeth. When these teeth, from eruption, are cared for properly, and their nature and resources are well understood, the admitted verdict will be that it will be the fault of the dentist, and not of the teeth, if they are not saved.

(Note.—In the discussion of this paper by Drs. Allport, Crouse, Nichols, Matteson, Ames, Noyes, and others, many very excellent points were brought out; but, depending upon notes taken at the

time, which I have unfortunately lost, I am unable to report the discussion intelligently. A. E. B.)

The next meeting occurs March 3d, 1885, when Dr. Harlan reads a paper. Subject: "The Antrum Highmorianum; Diseases and Treatment."

ANNUAL DINNER OF THE NEW YORK ODONTOLOGICAL SOCIETY.

To the Editor of the Independent Practitioner:

I had the good fortune to be a guest at the recent banquet of the Odontological Society, and should like to give to your readers some account of that gathering, and the impressions made upon me, besides acknowledging the debt of gratitude I owe to my entertainers. This society enjoys the enviable reputation of being one of the most influential dental societies in the world. Certainly it is the best advertised society on the planet. Its monthly proceedings are sought for with avidity, and are translated into all languages that have a dental literature. And this pre-eminence is richly deserved. Not a few of us remember how, in the past, a single session of the Odontological Society was worth more in its contributions to science than any session of any National Association that was ever held. The "New Departure," long in embryo in the minds and practice of individuals, was born into notice and life in the Odontological Society.

Whatever the Odontological Society does, it does royally. Its annual dinners have become a feature unequaled and unapproachable.

Well might it appear a royal banquet to a few travel-jaded souls who had spent four days and nights making a journey of a thousand miles in getting there; encountering blizzards from the Arctic circle, and snow-drifts well-nigh impassable.

It was on the night of the 18th of February that the society and its guests, to the number of seventy-five, assembled at Martinellis, a famous restaurant in New York, and greeted each other with all the cordiality of a fraternal family. From all over the land came eminent representatives of our profession to do honor to the occasion.

In this respect, and in its intellectual status, it was the most select gathering of dentists that it has been our fortune ever to behold.

The occasion was also honored by gentlemen representing other liberal professions, whose reputation is world-wide, and to look upon

whose faces and listen to whose eloquence was alone worth the entire journey.

The perfection of the arrangements and the complete success with which they were carried out, is worthy of all praise. From beginning to end everything moved with military precision. The credit of this is largely due to that Napoleon of organizers and managers, Dr. Kingsley, who was facetiously dubbed "the Autocrat of the Odontological dinner," but who, as Chairman of the Committee of Arrangements, was ably supported by Dr. Lord and Dr. Hill.

At seven o'clock the guests were seated, and at half past nine it was evident that all possible animosities which might ever have existed had now been healed, and the fragrant order of the "cigar of peace" ascended with the curling clouds of smoke, and good fellowship and hilarity reigned. The lions are always docile when they have just been fully fed.

Dr. Jarvie, President of the Society, sat at the head of the table and conducted the exercises in an able and dignified manner.

With a brief welcome to the guests who had honored the occasion by their presence, he called upon the Chairman of the Committee of Arrangements, Dr. Kingsley, for a report. This report proved to be one of the features of the evening. For the ensuing ten minutes the audience were kept in a constant uproar of laughter by its humor, which embraced extracts from letters of regret, and telegrams of the most witty character.

The President then gave the toast of the evening: "Dentistry; a science born of medicine and the arts, which more than any other profession is indebted to *all* the sciences and *all* the arts for its best expression and attainments."

We were particularly struck with this sentiment, as being the most comprehensive statement of the scientific status of dentistry that could have been made.

Dr. J. Smith Dodge, Jr., was called upon to respond. This gentleman is credited with being one of the most eloquent and accomplished orators in the dental profession, and certainly, if he had never earned that distinction before, his efforts at this gathering showed that he was fully entitled to it. Any attempt to epitomize his speech would only spoil it; it was a masterly effort of a half hour's length, which will amply repay publication in full, in your journal, if a copy can be obtained.

The second regular speaker was Dr. D. B. St. John Roosa, who, the President said, had made more deaf to hear and blind to see than any other man in New York.

Dr. Roosa spoke for the "Mother of Dentestry," and humorously said that it was the first time in his life that he had ever felt on an equality with the dentist. Heretofore, when in their presence, he had always been strapped and damned by their various apparatus, until he was powerless to resist; but now he could punish them by wagging his own jaw and boring them. He urged a benevolent and philanthropic spirit among dentists, which should show itself in the establishment of a dental infirmary for poor people, in every ward of the city.

Mr. F. N. Bangs spoke to the toast of the evening from the lawyers' standpoint, introducing much humor and fully sustaining his reputation of being one of the wittiest men at the bar.

One of the happiest hits of the evening was when Mr. Whitelaw Reid, of the *Tribune*, speaking for the press, said that there was a class of dentists that he did not see represented, one alone of which was of a great deal more value to the press than the entire body then present. He would not for the life of him dare enter *their* office, but he was most happy to meet them in his. Richmond had paid him five hundred dollars for a single advertisement, while not one of those before him had ever paid him one cent, and he didn't suppose they ever would.

The President introduced Mr. George Fawcett Rowe, as a fitting representative of all the arts, whose home was the world—journalist, correspondent, dramatist, actor, artist, etc., etc.

Mr. Rowe gave an amusing account of his observation of the teeth of the mummies in Egypt. From an inspection of several thousand of them (the exact number he did not remember—two or three more or less would not make much difference), and finding in the mouth of each thirty-two *sound* teeth, he concluded they did not have dentists in those days. If there had been dentists the results would probably have been different.

Dr. John B. Rich, one of the veteran dentists, but who looks in the very prime of his manhood, gave interesting reminiscences of dentistry as it was when he began practice, forty-five years ago, and contrasted the social standing of dentistry at that period with the present.

Following Dr. Rich came the genial Garretson, from the Quaker

city, and unmistakably of Quaker stock. There never was a better exemplification of the fact that religion is largely a matter of temperament. The old ascetic Puritan could not be other than a Calvinist, and if Dr. Garretson could have been born of Calvinistic stock, he would certainly have gravitated into the peace-loving fold of the Quakers. There is no antagonism in an assembly when Dr. Garretson is speaking. His voice, manner, and words have all the charm of a delightful perfume, and the effect is that of oil on troubled waters. It is a rare advantage that a young man possesses to be under Dr. Garretson's influence. His remarks at the banquet showed that no dentist of education and culture need be at all anxious about his social standing. It is the man who elevates the occupation, not the occupation the man.

Dr. Barrett, whose commanding figure attracts attention in any assemblage, not more than his readiness and fluency of speech, followed Dr. Garretson, using for his theme, "Dental Literature."

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No entertainment of dentists where Dr. Atkinson is would be a complete success without the sound of his voice, and this brief record of that banquet would be incomplete without a reference to him. Dr. Atkinson possesses a mind and qualities the counterpart of which cannot be found in the entire dental profession. His earnestness, his conscientiousness (as viewed from his own standpoint), his self-abnegation, his intense enthusiasm, his facility of speech, his profusion of ideas, his wondrous command of words, and the extravagance of his hyperbole, are unparalleled. To those who hear him but occasionally, his speeches are an entertainment never to be forgotten. On this occasion he made one of the best efforts of his life, thus adding to his already accumulated honors, and doing equal credit to the Odontological Society.

Other brief speeches were made by Drs. Allport, Shepard, etc., which time and space forbid any reference to, as this account is already so long that I fear you cannot find room for it.

One thing only occurred to mar the complete enjoyment of the festivities. Just before the close, the announcement was made of the sudden and possibly alarming illness of Dr. Dwinelle, who had been expected to speak of Dentistry as a scientific fine art.

A universal voice of sympathy was extended to him, and an involuntary prayer for his speedy recovery. PILGRIM.

Editorial.

THE DENTAL SECTION OF THE INTERNATIONAL MEDICAL CONGRESS.

Judging from the communications received relative to the editorial in the February number of this journal, the dentists are thoroughly aroused to the necessity for a proper organization of the profession, that it may make a creditable exhibition at Washington in 1887. That article was written for the purpose of awakening an interest in what should prove a memorable event in our professional history. We were aware that action was already contemplated, and steps had even been taken to open the work. The Chairman of the section of Oral Surgery in the American Medical Association had been at work, and the Chicago Dental Society had appointed a committee to further the object which all of us should have at heart. That committee has issued a circular, calling attention to the necessity for some concert of action on the part of the dentists.

Just too late for insertion in the February number came the following letter from the Secretary General, which gives official assurance that the section has been decided upon.

INTERNATIONAL MEDICAL CONGRESS,
WASHINGTON, 1887.

OFFICE OF THE SECRETARY GENERAL,
WASHINGTON, D. C., Feb. 1, 1885.

DEAR SIR:

I have the honor to inform you that it has been decided by the General Committee of the International Congress to have a Section of Dental and Oral Surgery. The officers of the section have not yet been selected.

Very respectfully yours,

JOHN S. BILLINGS,
Secretary General.

No official information as to the choice of officers (if any of them have been selected) has yet been made public, but at the late dinner of the Odontological Society in New York, it was intimated by one who should be in a position to know, that Prof. Taft, of Cincinnati, has been named by the committee as Chairman of the

section. This choice, if it shall be confirmed, will probably be as satisfactory to the dentists as any that could be made. Prof. Taft has a world-wide fame as an author and teacher; he has always been prominently connected with dental societies, and his selection would doubtless meet with as little opposition as would that of any man. It is essential that some one should be chosen who can bring to his support an undivided profession, and Prof. Taft would probably obtain as cordial co-operation as any one who could be named. Concerning his abilities as a presiding officer, and his talent as an organizer, we have no personal knowledge, but he certainly is not without experience. Whoever shall be chosen by the General Committee of the Congress, he must be heartily sustained by the dentists if we would see the section made successful.

The Congress of 1881, meeting as it did in London, the home of so many eminent dentists, a city distinguished for the hospitality of its professional men, was notably successful in its social aspects. There must be no stint in the entertainments offered to the guests of American dentists in 1887. We cannot afford to be outdone by our English brethren, and although the city of Washington does not enjoy the advantage of such a large body of local dentists as has London, the whole profession of America should join in extending a welcome, and in proffering such social attentions to the foreign members of the section as shall be worthy them and ourselves. To this end due organization of the whole profession is necessary, and the various State and National Societies should take the matter in hand at an early day.

Some provision must be determined upon for representation in the section of those who are without the distinguishing medical degree that the General Committee has determined upon as requisite for membership in the general Congress. They must be admitted with all the privileges of the section, for a Dental Congress composed exclusively of medical men would be a failure from the start. A number of plans have been proposed, any of which might reach the desired end, but the final decision must of necessity rest with the General Committee, and with the officers of the section when chosen. In the meantime a careful and temperate consideration of the whole question by the profession will greatly aid in its proper settlement.

DENTAL HISTOLOGY.

The *Journal of the British Dental Association* for January, contains some severe strictures upon a paper read before the American Dental Association, at its last meeting, by Dr. J. L. Williams, of New Haven. We are of the opinion that had the editor known all the circumstances under which the paper was read, and the end in view in its production, he would not have written the article, for the *Journal* has never, to our knowledge, been accused of wanton unfairness.

A learned professor in one of our schools, a famous writer, and an acknowledged authority on most professional subjects, had read a paper before another body, in which he advanced some theories essentially identical with those taught by Goodsir, and the object of Dr. Williams was to combat these views, which, coming from such high authority, he deemed pregnant with evil, and misleading to students in histology. To this end he again went over the ground, reproducing old arguments and advancing new ones to prove that—

(*i*) The teeth are not developed as papillæ in a groove.

(*ii*) That there is an enamel organ with a definite function.

(*iii*) That the formation of enamel is from the line of its union with the dentine outward.

But he did not assert these as original discoveries of his own, although he exhibited some of his own microscopical sections in demonstration.

Concerning the fourth point that the editor of the *Journal* claims that Dr. Williams "actually pretends to foist on a credulous world as his own discovery," viz.:

(*iv*) That the odontoblasts are of the nature of ganglionic elements, sending processes outward into the dentine, backwards into the pulp, and probably laterally to each other—

The editor, in a preceding article in the same number, speaks of "the revolution effected by the observations of Heitzmann and Bodecker." Surely, he must be aware that Heitzmann and Bodecker have represented these same odontoblast cells as round or oval plastids, *without* prolongations. Klein and Smith, whom the editor will doubtless admit as competent English authority, have also recently represented the odontoblasts as oval or oblong cells, *without branches*, and the dental fibrillæ as springing from "special branched cells," which lie deeper in the pulp. So this long settled

question does not seem to be settled at all, even according to the authorities quoted by the editor.

We are sorry to see such a matter dealt with in so flippant and undignified a manner. The levity of the article appears to us quite misplaced, and the writer has evidently failed to either understand Dr. Williams or the object that he had in view.

SNEAKING INTO DENTISTRY.

Eternal vigilance seems to be the price that the dentists of the State of New York must pay for their law. Last year a bill was introduced in the interest of some dentist who had more political influence than professional knowledge, and who thought it would be easier to lobby his way into the profession than to study for it. Hence, instead of coming by the way of a reputable college, he endeavored to sneak in through the back door of a complaisant legislature. It was by the merest accident it was discovered that a bill for the reopening of the registry was actually upon its passage, and in another hour would have become law. This year, the same trick of endeavoring to make a dentist by legislation instead of by education was tried again. But Dr. C. F. Wheeler, of Albany, warned by the narrow escape of last year, was on the watch. So carefully was the matter conducted that he did not discover the bill until the very last moment. Aided by others, he went before the committee to whom the bill was referred, and secured a postponement of action. The law committee of the State Society was informed by telegraph, and Dr. William Carr, its chairman, hurried to Albany. A telegram from him, just as this form goes to press, conveys the gratifying information that the bill has been strangled in committee.

DR. W. H. DWINELLE.

At the dinner of the Odontological Society, on the evening of the 18th ult., a painful announcement was made. Dr. Dwinelle, it was said, had that day been suddenly taken alarmingly ill, and the gravest consequences were feared. There were very many anxious enquiries made concerning his condition during the day or two following, and many of the guests of the society departed without

obtaining any assurance that the worst was over. It gives us great pleasure to assure them, on the authority of a telegram from Dr. Kingsley, that he has so far recovered that no immediate apprehensions need be felt. Dr. Dwinelle, like the lamented McQuillen and Webb, has always worked harder for his professional brethren than for himself, and some exhaustive labors and anxieties lately undertaken on their behalf, added to his professional work, were too much for his strength, and resulted in a temporary breaking down of his nervous system. Quiet and rest (if he can be prevailed upon to take them) will, it is hoped, result in his entire restoration to health.

Current News and Opinion.

OBITUARY.

LOUIS ELSBERG, M. D.

The best of the Laryngologists in America, a scientist of high repute, a liberal, kind-hearted man, a faithful friend, closed his eyes forever, on February 19, 1885, at his residence, 614 Fifth avenue, New York. He was born April 2, 1836, at Iserlohn, Prussia, and as a boy was brought over to America by his family, which settled in Philadelphia. Here he received a regular college education and graduated an M. D. when only 21 years of age, in the Jefferson Medical College, June, 1858. Laryngology became a settled science through the re-discovery of the Laryngoscope, by the late Louis Fuerch of Vienna. At that time Elsberg was in Vienna, at the cradle of the novel specialty, and both here and in Berlin obtained his training, which made him one of the foremost in this department.

After his return to this country he settled in New York City as a specialist in the diseases of the mouth, throat, nose, larynx, trachea and œsophagus, in a comparatively short time reaching a very high professional standing, and opened a brilliant practical career. He was elected to a professorship in the University of New

York in 1861, and held it for seventeen years. In 1862 the faculty established for him a public clinic, the first in this specialty in the world. Nobody has ever questioned his place in the front rank of Laryngologists, both in America and Europe, as was shown by his election as the first president of the New York Laryngological Society, of which he was the founder, and his ele tion to the first vice-presidency of the International Laryngological Congress at Milano, Italy, in 1881. He published a large number of contributions to Laryngology. He was editor of the Archives of Laryngology up to January 1, 1884, when its publication was discontinued. Numerous lectures and addresses were delivered by him in several of the dental societies of New York, where he demonstrated a new illuminating apparatus for the oral cavity, and spoke of topics concerning oral surgery. His last address was on February 2, before the Medico-Surgical Society of German physicians, explaining the anatomy of the larynx from entirely new points of view, that he never found leisure to publish in the shape of a book.

As a scientist, especially in the department of Biology and Microscopy, he had very few to equal him. He announced in 1872 the theory of the "preservation of plastidules," explaining in the most rational manner the transmission of bodily and mental properties from parents to offspring. The celebrated E. Haeckel, in Jena, discussed the question in his pamphlet on "Perigenesis of the plastidules," which has far less claims for clearness and conciseness than that of Elsberg. He was the first to fully adopt in this country the new doctrine concerning the minute structure of animals and plants, for which he proposed the term "Bioplasson theory." His most elaborate contributions to microscopy, securing him immortality in this department, are his "Researches on the minute structure of the red blood-corpucles," published, 1880, in the annals of the New York Academy of Sciences, and his "Contributions to the minute anatomy of the larynx," published in the Archives of Laryngology, 1882 and 1883.

Since 1864 he was a great sufferer from repeated attacks of periostitis, due to an infection from a patient. Since his sojourn in Aix-la-Chapelle, in Europe, 1881, this trouble seems to have left him. Unfortunately, early in 1883, he again infected himself with diphtheria while performing tracheotomy on a child, and this, though indirectly, caused the fatal result.

He was a man of great energy, devoting hours of night to hard mental labor. His prize essay on tumors of the larynx was written in forty-eight hours, and yet was so accurate that many years later he was not obliged to change his views. Even while suffering from excruciating pains his mind remained active, digesting and discussing philosophical subjects, and studying with zeal the great German Kant. Whenever he made up his mind to carry out an examination he never failed to do it, even though years had elapsed. His failure to publish his standard work on Laryngology, was due to the distressing consciousness that his knowledge of the inflammatory process of the mucous membrane was not sufficient. As a friend no better man could have existed—warm-hearted, generous, always ready to help, and spending many an hour to correct and polish the English of his less gifted friends, suggesting improvements, always spirited, witty, never tired. He married in later years, and enjoyed the company and assistance of a deeply boloved wife and a little daughter, both surviving him.

Louis Elsberg has done his share on this earth. His name shall not perish in the scientific world. Though far advanced in his convictions, often not understood by his fellow-beings, and bitterly attacked for his adherence to novel theories, he never doubted the ultimate victory of these views. Unfortunately he could not witness the triumph of many an idea that he helped to plant. All who knew him mourn his loss. All, moreover, are convinced that his is the wreath of immortality. C. Heitzmann.

MENTHOL.

This agent has for some years been employed among the Orientals as a topical application in slight cases of neuralgia, and more recently in this country for a similar purpose. Moulded in small cones, or "pencils," enclosed in boxwood cases, it has been somewhat extensively sold as a "headache cure."

In solution, menthol ʒ ij. with alcohol ʒ i., and applied with a camel's hair brush along the track of a nerve in cases of neuralgia, or even sciatica, produces a grateful and soothing feeling.

So far, no account of its use (to my knowledge), within the oral cavity has been recorded, but Dr. Hungerford, a physician of Stam-

ford, Conn., recently informed me that he had in a single instance applied menthol in solution to the gum to relieve pain from an aching tooth, and with good effect. This remark induced me to test its merits, and I have used it in a number of painful cases of pericementitis and alveolar abscess, with gratifying results. A very small quantity applied to the gum is sufficient. I consider it a valuable addition to our list of therapeutical agents, and one that will come largely into use to allay pain in cases of peridental inflammation. C. E. F.

FROM RUSSIA.

Dentistry is making advances in all quarters of the world, and travelers in the remote regions of Siberia and "frosty Caucasus," if they cannot have at their command genuine American dentists, may be served with American instruments and appliances. The following is inserted at the request of the editor of the first Russian dental journal ever published. Of his responsibility we know nothing, but the first copy of the "Dentary Revue" is a curiosity. The letters look as if printed upon the other side of the paper, and one involuntarily turns over the leaf to see if they be not showing through.

"I am about to open in St. Petersburg, from the 1st of January, 1885, a central agency of dental goods. I have the honor to solicit the manufacturers to send me their goods, that I may introduce them in Russia, Siberia, the kingdom of Poland, and in the Caucasus.

"The dental art having attained in Russia a considerable degree of development, the want of dental goods has grown very much, therefore I make bold to warrant a good sale, the more as I will insert advertisements about the goods sent in my dental journal 'The Dentary Revue' (Subovrachbng Vestnick), which is the only one existing in Russia.

"My address is, A. P. Sinitzin, Editeur Dentiste, 75–2 Neosky, St. Petersburg, Russia."

TREATMENT OF CHOLERA.

In view of the expected visit of the cholera to this country during the coming year, any contribution to medical literature, bearing upon the treatment of this disease, should receive careful and earnest consideration on the part of the medical profession.

By the researches of Dr. Koch, it is now known that acids are

most useful to kill the cholera microbe, and have been successfully employed by the profession in Europe.

Dr. Chas. Gatchell, of Chicago, in his "Treatment of Cholera," says: "As it is known that the cholera microbe does not flourish in acid solutions, it would be well to slightly acidulate the drinking water. This may be done by adding to each glass of water half a teaspoonful of Horsford's Acid Phosphate. This will not only render the water of an acid reaction, but also render boiled water more agreeable to the taste. It may be sweetened if desired. The Acid Phosphate, taken as recommended, will also tend to invigorate the system and correct debility, thus giving increased power of resistance to disease. It is the acid of the system, a product of the gastric functions, and hence will not create that disturbance liable to follow the use of mineral acids."

The following case is reported from Bangkok, Siam, and may be relied on as authentic: About three months ago a native was attacked with cholera. An American Missionary attended him, and administered all the medicines he could, but at last the man was so far gone that they gave up all hopes of recovery, and would do no more. Relatives of the patient begging the doctor not to give him up as lost, he at last thought of Horsford's Acid Phosphate. After the second dose the patient commenced to revive, and in six hours after, he was pronounced out of danger.

EMENDATORY.

We publish herewith a letter from Dr. Bogue, the substance of which was inadvertently placed without date at the end of his article in this number:

February 14th, 1885.

DEAR DR. BARRETT—Dr. Perry showed me last evening for the first time his improved separators.

I find the separator for the incisors so marked an improvement upon my own form, that I desire to make acknowledgment of its superiority. Yours faithfully,

E. A. BOGUE.

29 East 20th St., New York.

NOBLESSE OBLIGE.

But the "Noblesse" is not always duly honored. It is not a grateful task to hold up to the world instances of professional degradation, but in the interest of the thousand or so of dental students who are now in near anticipation of their diplomas, we are tempted to publish, *verbatim et literatim*, the following advertisement cut from a newspaper in this State, that they may see how unblushing ignorance and quackery appear to professional eyes. Happily, we hope such graduates are few, and yet more fortunate it is that the late agreement among the colleges will prevent such graduations in the future. This man, holding the diploma of a reputable college, had the advantage of association—for a time, at least—with gentlemen. But he doubtless emerged from a sty, and like the sow that was washed, he has returned to his primeval wallowing. He beautifully illustrates the futility of attempting to make a silver spoon by any patent process of white-washing brass.

DR. BLANKE, D. D. S., DENTAL SURGEON.

Having finished my course in the ——— Dental College I am now qualified to practice over Sergery and Dental Prosthesis in all their branches. From the making and adjusting of an artificial nose to the setting of a broken jaw. Also the Cleoplestic and Khinoplistic operations on Hair lips and Cleft palats, also artificial vorlies attached to plates. Particular attention paid to the preservation of the natural teeth. All work guaranteed and satisfaction given at reasonable rates.

SOUTHERN DENTAL ASSOCIATION.

The Southern Dental Association will hold its seventeenth annual meeting in the City of New Orleans, at Tulane Hall, situated on Dryade Street, between Canal and Common Streets, commencing on the last Tuesday in March.

The Exposition, together with cheap traveling rates, will no doubt induce a large attendance, and the meeting will be one of unusual interest and profit.

J. L. FOUNTAIN,
Cor. Sec., S. D. A.

Bryan, Texas.

CAPPING EXPOSED PULPS.

In your last issue Dr. W. M. Ramsdell replies to the enquiry of A. B. M. (Dec. '84) concerning exposed pulps. He suggests a cap formed from a portion (I apprehend) of an ordinary lead pencil.

A. B. M. may or may not be satisfied, but should he not be, he may try two forms, both very simple in construction and application, and from their non-conductivity and indestructibility well suited to the purpose.

1st. Soften, in hot water, an ordinary goose-quill. Stamp out with a large sized rubber dam punch a portion, and he will have a cupolated, or dome-formed "cap."

2d. The thin overplus, resulting in vulcanizing a black rubber denture, will also furnish an admirable article, and it can be cupolated by heating a suitable tool and pressing on the disk; apply it to the cavity by means of an ordinary gutta percha solution.

It is unnecessary to remark that this, as all other such operations, should be performed with great care. To this I make no claim of originality, as the whole subject was very fully discussed upward of twenty years since, in the *British Journal of Dental Science*, and the Odontological Society.

LAWRENCE VANDERPANT, L. D. S.,
Orange, New Jersey.

MARRIED.

In Baltimore, Jan. 8th, 1885, Dr. B. M. Wilkerson and Teresa H. Bowie.

Dr. Wilkerson was the founder of this journal, and for some time its responsible editor. Its readers will all join in wishing health, happiness and prosperity to the wedded ones.

DENTAL FURNACE.

Dr. C. H. Land, of Detroit, has invented a new furnace which, it is claimed, possesses decided advantages over any now in existence. It has not yet been fully placed before the profession, but any one who may feel an interest in it can obtain full information by addressing Dr. Land as above.

To the Editor of the Practitioner:

The article of Dr. Beers on "A Child's Teeth," reminds me of a similar case which came to my notice. The child, a girl aged about twelve or thirteen, is in very poor health, and anæmic. The mother says she has heart disease, which she inherits from her father. The upper teeth, twenty-eight in number, have thirty-two cavities in them; the upper centrals and laterals are quite destroyed. The lower teeth (number at present forgotten,) have fourteen cavities; the lower front teeth are so far destroyed by approximal decay that they resemble mere pointed pegs. I could give other particulars of the history of the child, but for brevity's sake will not do so now. The whole condition of the case was so bad that I did not believe that I could do any good by attempting to fill them, and with considerable regret told the mother that the child's teeth were not worth the filling. I was impelled to this conclusion not only by the teeth themselves, but by other attendant circumstances.

D. W. BARKER, M. D. S.

DENTAL ASSISTANTS.

In England it is common, when a dental assistant is engaged, to cause him to sign an agreement not to engage in practice in the same neighborhood upon the termination of the engagement. This practice is not usual in this country, and in consequence not unfrequently the dentist suffers by the drawing away of a part of his practice by the man whom he has introduced and recommended to his patients. A case of breach of such an agreement has lately been decided in the English courts.

Drs. Rogers and Cunningham, of Cambridge, engaged as an assistant Mr. Burton. The senior member of the firm subsequently died, and after a time Burton was dismissed, whereupon he opened an office in Cambridge, and commenced independent practice in violation of his agreement. Suit was brought by the surviving partner, and an injunction was granted by the court, prohibiting Burton from practicing as a dentist in Cambridge.

DENTAL SCHOOL IN AUSTRIA.

It is reported that it is intended to create a chair of dental surgery at the University of Vienna, in connection with an institute in which students of medicine and surgery can become acquainted with everything known about that special branch.

We are convinced that our maxim to allow the practice of dental surgery to physicians only, will be a leading distinction between our proposed institute and those of other countries.—*Oesterreichisch-Ungarische Vierteljahrsschrift fuer Zahnheilkunde.*

AMERICAN MEDICAL ASSOCIATION.

The thirty-sixth annual session will be held in New Orleans, La., on Tuesday, Wednesday, Thursday and Friday, April 28, 29, 30, and May 1, commencing on Tuesday at 11 A. M.

Delegates must receive their appointment from permanently organized State medical societies, and such county and district medical societies as are recognized by representation in their respective State societies, and from the Medical Department of the Army and Navy, and the Marine Hospital service of the United States.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The third meeting of the National Association of Dental Examiners will be held at New Orleans, on Tuesday, March 31, 1885.

All State Boards not already members of this association are earnestly invited to send representatives to this meeting.

GEORGE H. CUSHING,
Secretary.

STATE BOARD OF MEDICAL EXAMINERS.

At the late meeting of the New York State Medical Society, a draft of a bill was presented and unanimously concurred in for the establishment of a State board of medical examiners, and making a State examination necessary hereafter to a license for the practice of medicine.

EXTRACTION OF TEETH.

Dr. N. J. Hepburn, of New York, communicates to us the following method for the painless extraction of teeth. It has been used in some portions of Europe for a long time, with great satisfaction:

Dilute the tincture of Cannabis Indica made from the purified extract, with from three to five parts of warm water. Rub this over the gums with the finger for a short time, and then dip the warmed beak of the forceps in it before their application to the tooth.

JURY DUTY.

Dentists are frequently annoyed by being summoned to serve upon juries. Especially is this the case in the smaller towns. One who had thus been troubled has taken the pains to look up the law upon the subject, and desires to communicate the information to his professional brethren. He finds that by Chap. 358 of the Laws of the State of New York for 1881, dentists are exempt from jury duty. The judge sitting in the case upon which he was summoned refused to excuse him until shown the statute, the existence of which was previously unknown to him.

CHLOROFORM AND THE FIFTH PAIR OF NERVES.

W. E. Buck, physician to the Leicester Infirmary, says, in the London *Lancet*, that if a patient be not thoroughly under the influence of chloroform, any irritation of the fifth nerve will produce slowing of the heart's action and final stoppage through the pneumogostic nerves. He thinks this may account for many deaths in dentists' chairs, and advises that in any operation involving the fifth nerve the anæsthesia should be pushed until the patient is completely under its influence.

(47.) Dentists who practice in towns without water supply and gas, have to depend on small steam motors to run their dental machinery. Will some one having knowledge and experience in these, inform us as to the best to adopt, considering power, noise, cost (price and running expense), and steam producing apparatus, etc.? B. H. T., South Carolina.

(48.) It has been said by some parties who have applied cocaine to sensitive teeth, that it prevents pain in excavating. Others who have tried it repeatedly, say that it has no such effect. How can we account for such contradictory statements? A contributor in your February number asks how cocaine acts on animal tissue. I would like to know how it acts on the *hard* tissue. W.

(49.) Will some one please explain the term "knuckling," as used by Drs. Brown and Atkinson in the February PRACTITIONER. B.

(50.) Years ago it was the practice to fill cavities in devitalized teeth without treatment, and then beneath the gum to drill a hole to the pulp cavity, to permit drainage. Such teeth, sometimes with a continuous discharge of pus, occasionally fall into my hands now. What should be done with them?
MODERN DENTIST.

Answers.

R. (42.) To remove a Swiss broach broken off in the root, pack the canal with chloride of sodium (common salt); let it remain three or four days; then open, and the broach will come out without any difficulty. D. D. S.

S. B. (44.) Twenty States have laws regulating the practice of dentistry. For full information on this subject see *Caulk's Dental Annual* for 1884–85, page 40. D. D. S.

LABORATORY. (43.) You are wrong in advising a "clean sweep," especially for the lower jaw. If there are any teeth or roots that are or can be put in a healthy condition, do not extract them, as they are worth millions to the patient, in preventing lower plates from "swinging around loose." When you make a "clean sweep" you may be able to make a more beautiful set, but they will not be half so good for actual use. S.

STUDENT. (41.) Melt your waste amalgam, old fillings, etc., in a clean crucible, and as soon as melted pour into an ingot. File with a coarse file; remove the iron with magnet, and the new alloy is ready for use. Flagg on plastic materials is as good as anything you can find for instruction. S. S.

Thanks to "M. D." in February number for his reply to query 38. The patient has not made her appearance since, but when she comes again the suggestions kindly given will be well considered, and may aid materially in diagnosing the case. BOSTON.

R. (42.) Carry into the root canal a fiber of cotton saturated with tincture of iodine, and allow it to remain a few days properly sealed. The iodine will destroy the broach. G.

LABORATORY. (43.) As a general rule, where there are only two or three teeth remaining it is best to remove them, as a better articulation may thus be secured, as well as a much better fitting plate. The durability of such teeth, if allowed to remain, is very doubtful. If, however, the teeth are in the front of the mouth, or include the cuspids, it may be well to retain them for a while.
B.

P. B. R. (45.) Sets quicker. "This and nothing more." S.

Several communications are necessarily held over.—EDITOR.

"PREVENTIVE MEDICINE."

PROPHYLACTIC, ANTISEPTIC, DISINFECTANT,

LISTERINE

NON-TOXIC, NON-IRRITANT, NON-ESCHAROTIC.

These properties added to the absolute safety of Listerine, its agreeable character and uniform strength, concentrates into this preparation every requisite of a perfect Prophylactic, and gives it undoubted superiority over all other Antiseptics, especially for internal use. The well-known therapy of the several ingredients of Listerine confirms its claims for more than merely mechanical germicidal properties.

Formula.—LISTERINE is the *essential Antiseptic* constituent of Thyme, Eucalyptus, Baptisia Gaultheria and Mentha Arvensis in combination. Each *fluid drachm* also contains *two* grains of *refined* and *purified* Benzo-Boracic Acid.

Dose.—One teaspoonful *three* or *more* times a day (as indicated). As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used *ad libitum*, diluted as desired.

The universal commendation of LISTERINE by Physicians and Scientists of all Schools throughout the United States, after five years' thorough Clinical Experience, has fully established its value in **PHTHISIS, DYSPEPSIA, DIPHTHERIA, CATARRH, DYSENTERY, SCARLATINA, SMALL-POX, ERYSIPELAS, TYPHOID** and other **FEVERS**; and as the most grateful and pleasant disinfectant and prophylactic for **VAGINAL INJECTIONS** in **OBSTETRICS, LEUCORRHŒA, GONORRHŒA**, and, notably, for the hands, after Surgical and Gynæcological Operations.

This accumulated evidence of merit indicates its special adaptability to

DENTAL PRACTICE.

The testimony of its value in the treatment of ORAL DISEASES, in Dental Practice, is set forth in a special pamphlet on that subject to be obtained gratis on application, together with many Valuable Clinical Notes and Reprints by Eminent Surgical, Medical and Dental Authors.

☞Three Reprinted Lectures on **CHRONIC NASAL CATARRH**, (illustrated by forty wood-cuts,) by Prof. GEORGE M. LEFFERTS, M. D., New York City, are now ready for delivery, free of cost, to those who mention this Journal in making application.

LAMBERT PHARMACAL CO.,

New Office and Laboratory. - 116 Olive Street, ST. LOUIS.

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

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I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



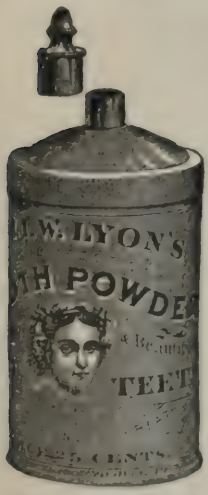
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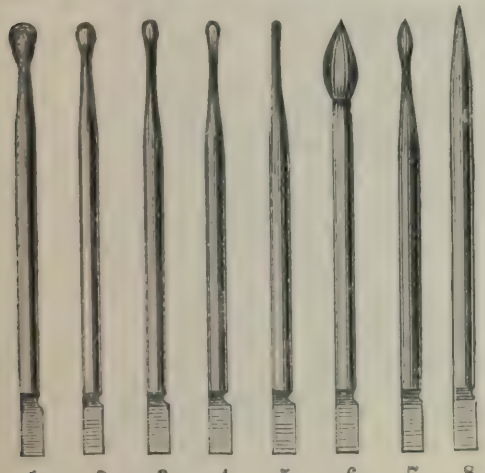
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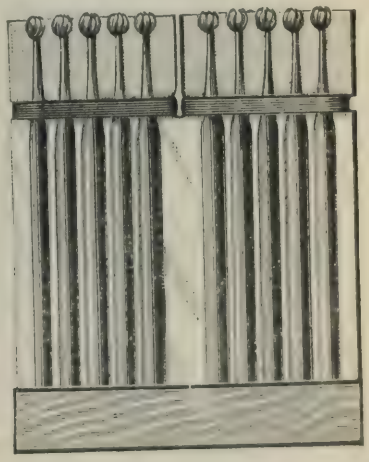
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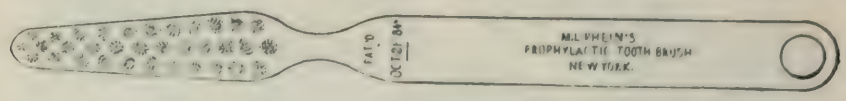
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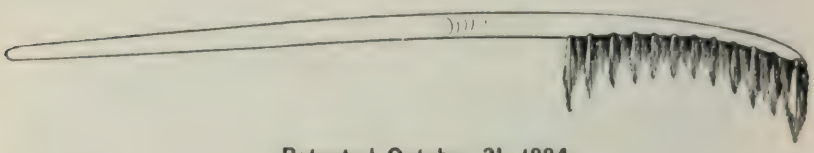


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NO OTHER BRUSH CAN SO PERFECTLY CLEANSE THE POSTERIOR AND BUCCAL ASPECT OF THE WISDOM TEETH.

Space can not be taken up here in enumerating the invaluable features of the brush; for other points of excellence in reference to the brush and care of the mouth, send stamp for pamphlet.

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Adult's, - - -	per doz., $3.00	Child's, - - -	per doz., $2.50
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Sample brushes will be mailed on receipt of 30 cents.

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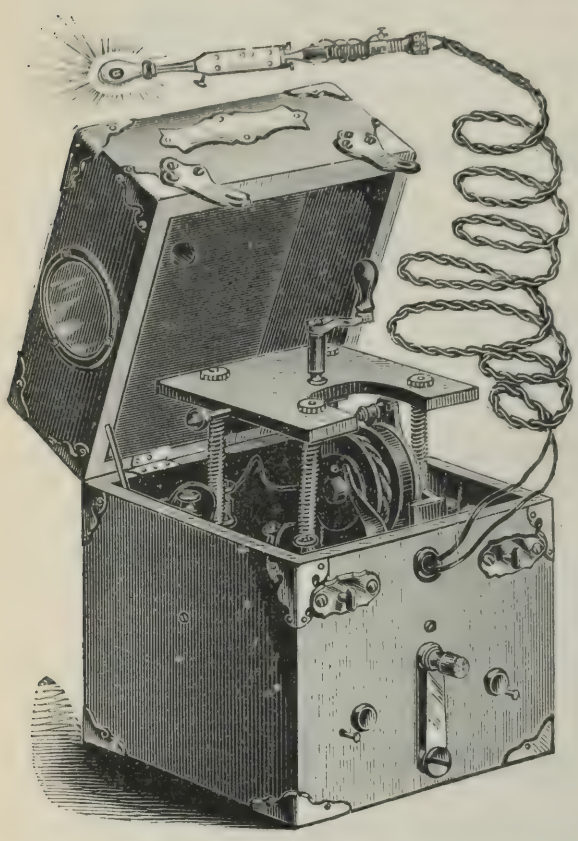
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THE

Independent Practitioner.

VOL. VI. APRIL, 1885. No. 4.

Original Communications.

A DISCUSSION OF SOME QUESTIONS IN DENTAL CARIES.

BY W. D. MILLER, BERLIN, GERMANY.

Since the publication of the results of my investigations in the etiology of dental caries, they have been the object of an unusual amount of discussion, and not a few, who in every sentence betray their utter unfitness for the work they have undertaken, have felt themselves called upon to point out my mistakes, and to present what they are pleased to call the logical deductions from my experiments. Moreover, sentences have been picked out without any regard to their connection or date of publication, and put together in the manner which appeared best suited to the wants of the speaker; or, with striking liberality, statements are attributed to me which will be found contradicted on almost every page of my writings. The dicussions of this subject in the different dental societies, have shown a lack of knowledge on the part of many who assert their right as teachers, which is not very creditable to them or the profession of which they are members. It is not my intention to reply to anything of this nature which has appeared in the dental journals. There are a few other points, however, which I will notice briefly.

The question has been raised as to the causes of the distention of the dental tubuli, seen in caries. I state, then, that micro-organisms *can*, and often *do* not only distend separate tubules, but push whole

tubules aside. (See Fig 1.) I have examined too many sections to be deceived in this; nor is there anything strange in it. We know that bacteria are unaffected by pressures far above the normal; we sometimes see, moreover, capillary blood vessels varicose and distended to many times their natural lumen, by the masses of micro-organisms.



Fig. 1.

"S.," in the *New England Journal of Dentistry*, tells us that "Dr. Miller seems to account for 'this phenomena' by the simple action of lactic acids." Now if there be anything which is specially offensive, it is to have some would-be critic thus tamper with the results of actual experiments, and I must beg "S." for the future to allow me to promulgate my own views. There is not a sentence in all that I have ever written which would justify this statement. The manner in which the further widening of the tubules, the breaking down of the basis-substance and the formation of caverns takes place, is concisely put in the *Dental Cosmos* for 1883, page 339, where I say: "The micro-organisms commonly found in the human mouth, are capable of readily transforming such softened dentine into substances suitable to their nourishment; in other words, of consuming it." Again, in the INDEPENDENT PRACTITIONER, 1883, p. 64: "There is no expansion of the tubules, no formation of caverns, no melting down of the tissue * * * * * * * * where fungi are not present." The manner in which this takes place was further set forth in a paper read before the Central Verein deutscher Zahnarzte, in Berlin, Aug. 3d, 1884. I then said: "If we throw a piece of boiled white of egg into a culture of the hay bacillus (*Bacillus subtilis*), it will gradually become smaller, and in a few days disappear; or if we add a piece of decalcified dentine to a culture of caries-fungi, it will in a like manner be dissolved. The same thing takes place in caries of the teeth. The same micro-organisms which produce an acid reaction of the fluids in a cavity of decay, possess the power, either directly or by means of a ferment which they produce, of dissolving the decalcified dentine." Either of the above quotations seems to present the case with sufficient clearness. The fungi, demonstrably and as I have *proved* by the experiment cited above, do possess the power of dissolving the decalcified dentine, or digesting it, if you please; but not a single fact can as yet be produced to show that they can soften *normal* dentine, either di-

rectly or by means of any ferment which they produce. In fact, the only experiments which have ever been made at all, point directly to the opposite conclusion. I have exposed pieces of dentine for years to the action of micro-organisms in non-fermentable solutions, without producing the slightest softening.

We would pay very little credit to the labors of a man who, not having mastered addition and subtraction, would attempt to solve a problem in calculus, yet there are not a few of our profession who, without knowledge of the simplest principles of bacteriological investigation, or without the least experience in bacteriological experimentation, do not hesitate to present a solution of the most difficult problems. Dentists get up in their various societies and remark that they have "repeated the experiments of Dr. Miller, and have not obtained the same results." Milles and Underwood, who have done more work of this nature than any American experimenter, if I may not say more than all American experimenters together, and whose communications are entitled to respect, reported that they had repeated my experiments; they were, however, consistent enough with the practice of scientific investigators to give in detail the manner in which they did it, and it was at once evident that their experiments were as unlike mine as they could well be. Consequently, I cannot be expected to consider it as a very serious matter when Quisdam chooses to get up in a dental society, and say that he has repeated my experiments without obtaining the same results.

I have proved that the softening of the dentine in caries is nothing more nor less than a simple decalcification; that the acids by which it is produced may be readily detected about decaying teeth; that these acids are formed by the action of certain micro-organisms, which, *being independent of the presence of air*, may form acids within the substance of the dentine; furthermore, that the same fungi have the power of dissolving the softened dentine. There is not a step in the process which has not been proved and made clear by repeated experiments, and which does not suggest its own reasonableness to every impartial practitioner. Finally, I have produced artificial caries which the best authorities on microscopy cannot distinguish from natural caries. Nevertheless, there are those who insist on the action of some unnatural agent or agents, for whose existence they cannot offer a shadow of proof, just as a few years ago some would have it that caries is the result of elec-

trical action between the different tissues of the tooth, or between the tooth-bone and filling, although no one was ever able to detect the culpable electricity, and although by the very nature of things it could not exist.

The Springfield school of "logicians," a short time ago, would hear of nothing but putrefaction, while the combined results of all the experimenters and observers of the world plainly told them that no one ever did or ever could produce caries by putrefaction alone. So "S." hypothecates the existence of a particular toxic agent, and, having done that, he hypothecates to his agent the power of softening dentine, while no one has ever detected the agent, much less produced caries by its action.

I have shown that the fungi of dental caries produce, first an inverting ferment, and secondly an acid-producing ferment, and thirdly (by experiments soon to be published) a peptonizing ferment. I have furthermore shown that there is a fungus in the human mouth, which, when injected into the blood vessels of small animals, produces blood-poisoning, demonstrating that it does, no doubt, produce a toxic agent, but this certainly would not justify the inference that all or any of the fungi of caries produce toxic agents, or that such agents have any effect upon sound dentine.

With regard to the digestive fluid, the avidity with which the mention of it is seized reminds us of the Bourgeois gentilhomme: "What! when I say, 'Nicole, bring me my slippers and give me my night-cap,' is that prose? Upon my honor, then, I have been talking prose these forty years, and have not known it." Toxic agents! digestive fluid! they exclaim; we never heard of them before; they must be the cause of dental caries. It does not matter whether any of the fungi of dental caries really produ e toxic agents or not, or whether if they did, tooth-bone would be affected by them; here is something (old) which to us is new; here must be the explanation of all caries. They even go so far as to speak of *Dr. Black's* digestive fluid. Dr. Black certainly does not claim to be the first to detect the existence of such an agent. Will some one please name an organism with a digestive fluid (not acid) sufficiently strong to digest dentine or enamel not previously decalcified?

When we know that we have so many micro-organisms in the human mouth, and know that many of them are continually producing acids there, and know that this acid very readily attacks and

softens dentine (or enamel), and know that they are capable of dissolving the softened dentine, then why not hold fast that we *know*, instead of rushing headlong after something that we know nothing about?

It would seem as though certain of my contemporaries had consecrated themselves to the sole object of putting everything possible in the way of a clear understanding of the subject, of distorting and confusing the simplest observations, and substituting for them anything that can be seized upon, utterly regardless of its complete incoherence.

It is not very long since the view was strenuously advocated in the *New England Journal*, that caries does not begin until putrefaction of some portion of the organic matter sets in. Now, Mayr tells us that "caries comprises only that small diseased layer, probably not over one-one-hundredth inch thick, that was sensitive." It would be difficult to say which of these views has less foundation in fact. The absurdity of making sensitiveness the test of caries must be at once apparent to every practitioner, even if we do not take into account pulpless and dead teeth. Equally non-accordant with the most simple facts of histology is the comparison of the mass of carious dentine to a scab; there is not the slightest analogy between the two, nor is there between pus and the outer layers of carious dentine. Such misleading terms should be scrupulously avoided. It is very plausible to make a theory of dental caries, and then frame a definition of caries which will conform to the theory; it does everything else, however, more than it advances the cause which it pretends to serve.

It has been, furthermore, persistently asserted in the *New England Journal*, that in that portion of the softened dentine bordering on the normal the lime salts are present in normal proportions, whereas analyses of this layer, made by Dr. Jeserich, and by myself, have shown a very considerable reduction in the proportion of lime salts. (See *Cosmos*, 1883, p. 342.) As I pointed out in the article just referred to, the analyses on which this assertion is based having been undertaken with one milligram of carious dentine, were necessarily completely unreliable, as every dentist in the United States may find out by enquiring of any competent authority in chemistry. Since my connection with the Dental Institute, I have had abundant opportunity to secure the material necessary for carrying out

these analyses, and the result has completely confirmed the previous work.

From about one hundred and fifty teeth, I chose thirty of those best adapted, removed all the outer, very soft dentine, and took for the purpose of analysis only a very thin layer on the border of the normal dentine. The instrument grated on the hard dentine, and the almost or completely colorless dentine came off in little chips, great care being taken that no trace of enamel should get mixed in with the dentine. The analysis made by Dr. Jeserich, a sworn chemist, the highest authority here, gave sixty per cent. of lime salts, while a similar analysis made by myself gave sixty-one per cent. As the amount of dentine used in the determinations was in each case above 75 mg. and the analyses were made with great care, it may be safely said that the error of experiment fell within one and one-half to two per cent. at the outermost. Herr Bennefeld (*Correspondenz Blatt fur Zahnarzte*, Jan., 1885) found in an analysis of over 100 mg., obtained from about fifty teeth, sixty and four-tenths per cent. of lime salts. These results indicate the exhaustion of over one-third of the lime salts. Were it true that the softening of the dentine on the border line is produced by a destruction of the organic matter, these analyses should show an *increase* in the percentage of lime salts, a result which no one has ventured to publish, and how, in the face of this fact, any school of *philosophers* could persistently adhere to and promulgate such a doctrine, is more than I can understand. If this be logic, then let us "throw" logic "to the dogs." Moreover, the necessary experiments have not yet been made to prove that those who make such a parade of logic know anything more about it than the lookers-on.

I have a few remarks only to make regarding the inflammatory theory of decay, as I have previously clearly stated my views on this subject. Every practicing dentist must be impressed with the fact that there are very many peculiarities connected with caries of the teeth which directly contradict the idea of inflammatory action, and there are none as yet definitely established which agree with it. At the last Saratoga meeting, it was said that Dr. Miller had forgotten that there is a large amount of organic matter in the teeth, a very erroneous statement, as I have never lost sight of the fact for an instant, nor of the fact that there is also much organic matter in nails, hoofs, hair, wool, feathers, etc. We need other evidence than this, before we can call caries an inflammatory process.

Again, the mere detection of swelling or tumefaction of the dentinal fibrils is no evidence that caries is the result of inflammatory action. The custom of certain dental pathologists to assume that every variation from the normal detected in the tissue is of an inflammatory nature, is about as rational as it would be for the general histologist to ascribe the many post-mortem changes which take place in delicate tissues, while being prepared for examination, to inflammation. Experimenters have long ago shown that such post-mortem changes may take place in dentine, and I have produced them artificially. When Dr. Bodecker was in Europe, he examined a number of my preparations, and, in one instance in particular, he called attention to the absorption territories and swollen fibrils, not knowing that he had a case of artificial caries before him. He was much surprised on being told so, and said that I had "saved him an immense amount of labor."

I do not say that changes of an inflammatory character may not take place in the dentinal fibrils, as a result of the action of the caries-producing agents, or in connection with inflammation of the pulp. Indeed, it would be strange if the acids penetrating the dentine and bathing the fibrils did not produce some change in them. But it remains to be shown that in either case these changes either produce caries, or accelerate the process when once established.

I have no prejudice whatever against the inflammatory theory of decay. On the contrary, I would gladly welcome it, if it could be shown that there is at least a trace of truth in it. But at present there are too many and too great obstacles in the way. To say nothing of the facts that in caries the cardinal symptoms of inflammation are all wanting, that it is impossible to produce caries by those means which invariably produce inflammation of other tissues, that caries attacks pulpless and dead teeth as readily as living ones, and that caries can be produced artificially—aside from these facts there is not a little evidence which points to anything but inflammation as the cause of caries.

Anyone who has given time to the study of inflammation, particularly of bone or cartilage, will at once be impressed with the fact that there is not the slightest trace of similarity between it and *caries dentium*. Furthermore, the action of different coloring matters upon carious dentine furnishes information of considerable in-

terest. For example: Picro-carmine colors the simply decalcified, otherwise unchanged basis-substance pink or red, while the distended tubules and the round or oval caverns filled with the debris and fungi (called by Abbott medullary elements), are stained yellow. This reaction is in marked contrast to that with pulp tissue, periodontium, bone, cartilage, etc., where changes of a truly inflammatory character have taken place.

Again, the so-called medullary elements are found in dead as well as in living teeth, and mostly in the outer layers of carious dentine which have lost all vitality, and cannot therefore be subject to inflammation. The deciding test for the correctness of any theory of caries is the possibility of its application in the direct production of caries, and if any advocate of the inflammatory theory can produce a speck of carious dentine as big as the point of a pin, within the next ten years, the inflammatory theory will be entitled to more consideration than it now merits. As stated above, I am ready at any time to acknowledge inflammatory action as an agent in the production of caries as soon as a single definite proof has been established in its favor. In a following number of this journal I shall consider the "toxic agents" and "digestive fluids" formed by certain of the micro-organisms of the human mouth.

THE COMMA BACILLUS OF ASIATIC CHOLERA.

BY GEO. W. LEWIS, JR.

Sixty years ago, when but a single disease was recognized as the result of a minute organism slowly working its way from the surface towards the more vital parts of the human system, scientists and physicians alike would have scouted the idea, had it been proposed, that sixty years hence no less than seventy of the most deadly affections which man is heir to could be directly traceable to the activity of a lower animal life. This, however, is the case, and thanks to the progress of natural science and biology, we are now able to understand more fully that the history of life is a contention amid its various forms, and that all life of whatsoever sort has associated relations. Nor are these relations of a trivial and unimportant character, for there is generally found to be a means

by which the welfare of all true life is promoted. This may show itself in either of two ways; the lower forms may be destroyed in order to preserve the higher, or the lower life may serve as a means in disposing of that which would otherwise be injurious to our existence.

When we consider how intimate the relation is between the animal and the vegetable world, the theory of disease with all its complications becomes more and more evident, and with this gradual insight comes also a better understanding of the exact functions which these lower forms of life possess. To say that the vegetable life promoted the animal, and that the animal in its decay promoted the vegetable, formed the starting point from which all our present knowledge has been obtained. Add to this the marvelous revelations of the microscope of high magnifying power, and we have thus far ascertained the causative agent in a vast number of contagious diseases. That these diseases, moreover, are at least influenced if not caused by the presence of the organisms, is proved by the fact that their destruction in the living body causes not only a marked change, but also a very evident decrease in the intensity of the affection. It is, however, in many cases extremely difficult to find a remedy which will kill the organism and at the same time not injure the health of the patient. The power to resist strong reagents is very marked in some classes of micro-organisms, while in others the application of a very weak solution is sufficient to destroy their fatal tendencies.

The rapid advance which is being made in this department of medicine, has so far out-distanced the progress of rational therapeutics that a complete revival of the latter is needed in order to make these discoveries seem of any avail. The question has often been asked, "What is the use of all these so-called causative agents in disease, if a radical cure cannot be effected?" The answer is simply this: experience has shown that the healthy body, when attacked by disease, passes through certain changes, and the object was primarily to ascertain, if possible, the microscopic appearances which attended these changes. In so doing, a strong hope was entertained that some revelations might be made which would enable rational therapeutics to act with greater certainty. In a large number of diseases a high magnifying power revealed the presence of minute masses of protoplasm, each moving so rapidly that their

characteristic form and properties could not be distinguished. Moreover, these masses of protoplasm seemed to be divided off into colonies, each occupying an almost circular position in the affected region. In come cases colonies presenting a very different appearance were noticed, thus showing the invasion of more than one species. Wherever several distinct species were detected, however, there was always one which seemed to predominate. This fact, once established, was sufficient to encourage the most sanguine to adopt any method which would enable them to study the form and function of the individual organism. The next step, therefore, was to apply some artificial coloring matter which would give a clear outline of the form, and at the same time place it in a stationary position. As a result of all these investigations, several classes of organisms have come to be recognized under the names of Bacilli, Micrococci, Spirilla, etc. Although a means of exterminating these foreign invaders into the human system has not in all cases been found as yet, it is to be hoped that active workers in the field of rational therapeutics will soon be able to devise some plan by which their satisfactory removal can be effected. Until that time is reached, however, the theory of their disease-causing property must not be despaired of, for time and experience have both shown that this is the only true method of becoming acquainted with the inner workings of the pathological condition; and the wonderful results which have already been achieved will undoubtedly spur on others to a greater activity.

Inasmuch as the object of this paper is to describe as lucidly as possible the comma bacillus of Asiatic cholera, to which the writer has given particular attention, reference to others of its class will only be made in order to render stronger the contrast between them. With regard to Micrococci and Spirilla, they are organisms of an entirely different nature, and require a separate treatment. It may be well to state for the benefit of those unacquainted with this subject, that the term Bacillus is applied to all forms of miscroscopic life which are characterized by a length two or three times as great as their width, or in other words an organism presenting, under a magnifying power of 1000 diameters, very much the appearance of a piece of thread one-sixteenth of an inch in length, and one forty-eighth of an inch in width. With the understanding, therefore, that the perfectly healthy body is possessed of an almost

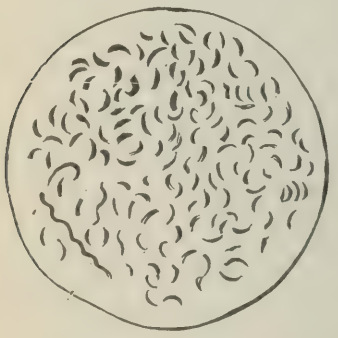
infinite variety of micro-organisms, and that it is only the invasion of a foreign organism which causes the disease, I wish to say a few words about the difficulty in distinguishing between the different kinds of bacilli.

With the exception of Dr. Koch's cholera bacillus, and the bacillus recently demonstrated by Dr. W. D. Miller, of Berlin, to be the cause of inflammation of the gums, it is almost impossible to distinguish between the various species of organisms known to us by this name as they appear under the microscope. This difficulty, however, is obviated by carrying out an artificial cultivation in some nourishing medium, such as food-gelatine, or bouillon, wherein the different varieties are easily distinguishable by their peculiar mode of growth. The cholera bacillus and the bacillus of inflamed gums both possess a marked curve resembling that of a comma, and for this reason can be readily recognized; but the bacilli of typhus fever, tuberculosis, gangrene and many other diseases, are so much alike that a safe diagnosis can only be made by artificially cultivating them. It may seem to many that this idea of reproducing an organism outside of the body for the sake of proving its identity, involves an exceedingly long and, in fact, unnecessary process; but it must be remembered that in such a disease as cholera, where the intestines alone are concerned, there are, besides the comma bacillus, several other species, some of which appear to possess curves not unlike a comma. In these cases, however, the form is probably due to pressure of the cover-glass, or to some other force which is brought to bear upon them during the coloring process, for in an artificial cultivation they are invariably straight. It is better, therefore, even with the cholera bacillus, not to trust too much to the microscopic appearances. An artificial growth can easily be obtained in twenty-four hours, and will then put an end to all speculation and guess-work.

In saying that cholera is an affection exclusively of the intestines, I base the statement upon one hundred examinations made by Dr. Koch with a view of establishing this fact. He claims that in spite of the most careful investigation of all the other organs and of the blood, nothing was found which would lead one to suppose that the infectious material was to be found there. Moreover, only a comparatively small part of the intestines seemed to be the real seat of the disease, the ileum, including Peyers glands,

being the part most affected. Upon examination of pieces of the intestine, and of its contents, there were found to be immense numbers of comma bacilli in the vicinity of the glands, thus causing the red and inflamed appearance around the edges; they were also found to have penetrated deeper into the tissues, forcing their way between the epithelium and the basement membrane. Behind these bacteria various other bacilli were noticed, some longer and thicker, others very short and thin. The characteristic curve, however, was wanting except where the comma bacilli were present, and no pathological change was detected except in their tracks. The comma bacilli are described as always being in advance of the non-pathogenic bacteria, the former forcing their way further in to prepare the path for the latter. This would seem to indicate beyond a doubt that they play an important part in the malady, and that without them the disease would in all probability be unknown.

It is difficult, in such a paper as this, to give a clear idea of how the comma bacillus looks under the microscope; indeed, to describe it in words would be almost impossible. Perhaps, however, the following cut may serve to illustrate its main characteristics. Occasionally two of the organisms are attached together, giving the appearance of the letter S; then again several, by means of the same process, form a wavy thread. This appearance has given rise to the theory that the comma bacillus is not a genuine bacillus, but only a detached form of a spirillum. It is not necessary, however, to discuss this question here; suffice it to say that Dr. Koch rather adheres to this belief.



Experiments have shown that the temperature most favorable to the growth and development of this organism range between 86° and 104° Fahrenheit. The growth is rapid, and a maximum is soon reached, after which a speedy decline sets in. This stage is characterized by a gradual wasting away, and a consequent loss of form. During their activity the proportion of comma bacilli to other intestinal bacteria has in some cases been estimated as high as ten to one. This, although not a trustworthy guide, indicates the ten-

dency of all rival life; that which is higher in quality must succumb to that which is greater in quantity. Another peculiarity of this microbe is that it dies very quickly after being dried. In this respect it closely resembles the spirillum, for as far as is known no other micro-organism is effectually exterminated from want of moisture.

Although comparatively little is known of the life history of the comma bacillus, we are nevertheless able to detect in it a striking relation to the cholera process. The fact that the organism reaches its fullest development in a single day, coincides with the almost phenomenal progress which is made in the disease in a similar time; then, too, the loss of form which quickly follows after it has reached the maximum growth, would seem to imply a corresponding loss of power. The excreta of persons who had recovered from a very evident attack of cholera were examined both before and after the disease had subsided, with a view of establishing the relationship which existed between the comma bacilli and the other intestinal bacteria. While the disease was at its height, the excreta contained enormous quantities of comma bacilli, with very few other bacteria. Later on, when a favorable change in the condition of the patients was noticed, examinations revealed a marked decrease in the former, and a corresponding increase of the latter. After complete recovery no comma bacilli were to be found.

Before closing this paper I desire to say that everything is in favor of regarding cholera as a germ disease. The fact that all attempts have failed to produce the cholera symptoms in animals, by inoculating comma bacilli into their systems, does not necessarily disprove the theory that the comma bacillus is the cause of cholera. Few people at the present time doubt that leprosy is caused by a specific organism in the shape of a bacillus, and yet it is impossible to produce that disease in animals by inserting the infectious material into their bodies. It simply shows that cholera, like leprosy, is an affection peculiar to the human race. On the other hand, we know of several diseases of animals which cannot be transferred to man; for example, rinderpest, and pneumonia of cattle. We meet here with a phenomenon widely spread in nature. Almost all parasites are restricted to one, or, at most, only a few classes of animals, which seem to act as their host. A striking illustration of this is to be found among tape-worms. Nearly

every species of animal has its own special tape-worm, which can only be developed in that species.

It is now far from satisfactory to pronounce as to many diseases until their etiology has been thoroughly explored, and until, by the method of exclusion, we are able to say of this or that symptom, or of the aggregate of symptoms, that they do not result from the activity of a lower animal life. The same is true as we pass into the still broader field of plant life. When reference is made to the germ theory of disease, many at once take it for granted that the allusion is to some form of animal vitality. The fact is, however, that the great contention between life, disease and death, has to do with plants. Whether we speak of spore, of fungus, of bacteria, or of other low forms of existence, it is generally with botanical principles that we have to deal. Ardent workers in this department of science have demonstrated beyond a doubt, that there is a plant-world too small for the human eye, and that it possesses thousands of forms, each knowing its own soil. Some departure from the normal condition constitutes the chosen nourishment for each of these forms, and in their sudden and rapid growth we have the actual manifestation of various diseases. We have already singled out and classified this lower life enough to show that there is a disease botany of the future, as intricate as was that of the life botany of the vegetable world a hundred years ago. It demands a more minute study and intricate classification, and, because so imperceptible, will require a longer time for its development into a complete system.

BERLIN, GERMANY, *February* 8, 1885.

THE WORLD'S EXPOSITION.

BY MRS. M. W. J.

The opening of the World's Exposition marks an epoch in the history of the nations of the earth.

Here may be traced, in chronological order, the workings of the mind, the development of the genius, the results of the handiwork of man, from the very infancy of the human race, onward to the

grandest achievements of the most advanced scientific minds of the present day.

The physical development of man may be traced from Ward's cast of the Neanderthal man—probably the oldest existing relic of prehistoric man, contemporaneous with the fossil mammoth of the Rhine valley—through skeletons and skulls and casts of the brains of men of all ages and all races.

In addition to Ward's celebrated series, there is in the Missouri section a very rich collection of archæological specimens and Indian antiquities; also some fossil remains, embracing a number of human skeletons dug from the ancient mounds. This collection, which is contributed by Prof. Broadhead, of St. Louis, is very interesting and valuable.

The intellectual progress of man, as evidenced in his handiwork, may be traced from the rude homes of the ancient cave and cliff and mound dwellers, as seen in the Smithsonian reproductions in the exhibit, on to models of the most modern structures of dwellings, churches, hospitals, etc.

The development of "the inner and the outer man," as evidenced by the provisions made for his gradually increasing wants and requirements, from the bare necessities of animal life on to the æsthetic luxuries of the present day, may be studied through the primitive hunting and fishing implements, rude pottery and basket ware, remnants of bark and skin garments, which have been unearthed from among the ruins of those ancient dwellings, and which sufficed to supply the needs of primeval man, down to the exquisite Venetian and Bohemian glass-ware and the translucent porcelain, or the gorgeous fabrics of the modern loom, the rich silks and velvets, the dainty gossamers, the "purple and fine linen" which minister to the refinements of our highest civilization.

All that mankind has learned, from the beginning of time to the present day, in manufactures, in inventions, in the products of genius or of skill, all that is beautiful in art or wonderful in science, all that the world holds valuable, whether as the production of the earth or as the invention of man, may here be seen in its consummated form. The whole earth has poured her treasures into the lap of the Exposition.

The exhibits of the national department of state form a complete technological school, illustrated by contributions forwarded by

the U. S. consuls in all parts of the world, the geography and the history, the industries and the specialties of every nation on the globe being thus set forth in one grand tableau.

In all the crowds that throng the vast buildings or wander through the extensive grounds, there cannot be found a man, woman or child, who will not find somewhere within the enclosure the one thing of all others that he has most wished to see or study.

No matter what may be his calling, or where his home, he will find that which has hitherto seemed most inaccessible or unattainable.

The farmer will find samples of the soils of all lands, the products of all soils and all climates.

The sailor will find models of the most famous vessels that have ever been constructed. The painter and the sculptor will find the rarest gems of art.

The musician will find instruments of every age and every make, and can listen to strains of classic music interpreted by the most skillful musicians.

The student of the natural sciences will find, in the Smithsonian exhibit or in Ward's collection, his own special branch of study most fully illustrated, in systematic cabinets devoted to mineralogy, geology, paleontology, zoology, botany, taxidermy, etc.

The educational exhibit is very complete.

The medical student will find a fine display from the department of medicine and surgery of the U. S. Navy—models of army hospitals, floating hospitals, travelling hospitals, models of wounds and scars and amputations, artificial limbs, exhibits of sanitary arrangements for the sick on board men-of-war, etc. There is also a model of a crematory, constructed of iron, and in perfect working order.

Prof. Nissen, of Sweden, exhibits his system of gymnastic apparatus, for correcting physical defects and developing the muscular system.

Caswell, Hazard & Co., of New York, show a complete hospital outfit, embracing every possible requisite, while Seabury and Johnson show all kinds of medicinal plasters.

The displays of drugs and chemicals, salts and crystals, are showy and elegant in their bright colors and prismatic tints, forming castles and grottoes and pyramids, sparkling and glowing under the electric lights.

The Dental exhibit is rather limited, the S. S. White Co. having the only large and elaborate display. This is most tastefully arranged, the furniture consisting of their handsomest dental chairs and attachments, bracket-tables, fountain-spittoons, etc. Their instruments of every variety, as also teeth and plate-work, are handsomely arranged, gleaming against a background of dark velvet. Handsome silver-mounted show-cases also display a full line of their various "specialties for the mouth," washes, pastes, powders, tablets, etc.

In the Iowa exhibit of woman's work is a display of platework by the first female dentist licensed in that State.

J. H. Meyer, of 159 W. 34th street, New York, has a very tasteful display of platework.

G. Sibley has also a neat case of teeth.

On a pedestal bordered with elegant lambrequins, Vail Brothers, of Philadelphia, have built a lofty pyramid composed entirely of bottles of their very superior tooth-powder. They also present every purchaser with an elegant *souvenir* of the Exposition.

In the foreign exhibits, A. Chonet et Cie, of Paris, display the tooth-wash and the quinquina and coral tooth-powders of Docteur Pierre.

In the Russian exhibit is an elegant display of gold leaf and foil, from Smirnoff, of Moscow; also a case of platework medals and crosses from Dr. L. Bernardo-Berkaneer, of the same city.

In the Mexican department may be seen, in a glass case, a curious branching cactus plant, bearing a remarkable crop of flowers in the shape of numerous medals bestowed upon Dr. Antonio Roque, "Chief Director of the Surgical-Dentistry Department of Public Assistance," the fruit of the same being a meagre assortment of rubber and celluloid platework.

Another glass case in the same exhibit contains an assortment of dental instruments, with the card of Dr. R. Lavista.

There is also platework from the office of Dr. Jose-Maria Soriano, who has apparently associated with himself the American dentists, as the exhibit also bears the names of Drs. Keller, Thompson, and Wyse. This concludes the list of all the dental displays that I have been able to find in the World's Exposition, but there is enough here to interest every dental observer.

THE CONSTRUCTION OF SUERSEN'S OBTURATORS.

BY DR. TH. WEBER, HELSINGFORS, FINLAND,

It is not the intention of the writer to say much about his own experience in this field of dentistry, but to confine himself chiefly to the work of his esteemed teacher, the Geheimer Hofrath Dr. Wilhelm Suersen, of Berlin, who has done a great deal for the advancement of oral prosthesis, as well as dental science, in Germany. It was a source of regret to find that in this country Suersen's valuable inventions were (with few exceptions) comparatively unknown; I therefore regard it as my duty to him, as well as to the dental profession of this country, to publish his method of constructing obturators. Dr. Suersen is not alone a man of great scientific attainments, but he is also most kind and liberal in the practical application of his knowledge; he is ever willing to impart advice and give information to dental practitioners, whether to him known or unknown. He especially shows his charitable disposition when poor sufferers apply to him for aid in treatment, often supplying them with appliances without remuneration of any kind. It is not, therefore, to be wondered at, that he occupies one of the most prominent positions in the dental profession of Germany. At the meeting of the Central Verein Deutscher Zahnarzte, held at Hamburg, August the 6th, 7th and 8th, 1867 (Deutsch. Vierjahrsschr. f. Zahnheilkunde, 1867, page 269, etc.), Dr. Suersen demonstrated his ingenious method of constructing obturators entirely of hard rubber, to the satisfaction of all the members present.

Palatine defects are either congenital or acquired, and each case of either class requires different treatment. While the acquired lesions only need a perfect fitting apparatus to enable the patient to articulate perfectly in a very short space of time, a patient with a congenital defect will need constant instruction in articulation for weeks or months, even with the most perfect appliance that can be made. A patient with a congenital defect, for whom an obturator has just been inserted, is like an infant; he is unable to control his muscles in such a manner as to produce perfect articulate sounds, especially when he is advanced in life. In these cases the patient tries to imitate the sounds of other persons as nearly as pos-

sible, thus finally using the muscles of the palate and the tongue in an abnormal way.

Staphylorrhaphic and Urnoplastic operations have never given good results; at least an improvement in articulation has seldom or never been obtained, and they are, therefore, discarded by most modern good surgeons. When a velum has been united by an operation, it generally becomes too short to enable it to come in contact with the superior constrictor muscles of the pharynx, and the nasal passages in relation to speech are in nearly the same condition that they were before the operation.

Although I take it for granted that every one who attempts to restore palatine defects is acquainted with the anatomy and physiology of the parts, I shall briefly refer to some peculiarities of the more important muscles connected with articulation. During articulation the posterior nares are more or less closed by the soft palate, except in the case of the two letters M and N, when the air must pass directly from the larynx through the nose. In the pronunciation of all the other consonants, however, the posterior nares must be closed in such a manner that all the air is obliged to pass through the mouth. The vowels are pronounced in a similar manner, although in distinct articulation some air does pass through the nasal passages, but without producing a nasal sound. The amount of air passing through the nose varies with each of the vowels. In sounding the letter A, for instance, more air passes through the nose than with O or U, and still less with E and I. If, therefore, the nasal passages are stopped up by an inflammation of the Schneiderian membrane, a polypus, or an obturator which extends too high into the nasal cavity, the letters M and N can only be pronounced with great difficulty, and the vowels will be accompanied by a nasal sound.

Articulation, therefore, is produced by a continuous opening and closing of the nasal passages, through the muscles of the soft palate, together with the superior constrictor of the pharynx. The latter muscle contracts with the pronunciation of every letter, to which fact Dr. Suersen was the first to draw attention, and it is this muscle in particular upon which the whole success of a Suersen's obturator depends.

The elastic artificial vela, invented by Dr. Stern, and afterwards modified by Dr. N. W. Kingsley in such a very ingenious manner,

give most beautiful results, but they cannot be employed in every defect. In acquired cases, where the cleft is very wide and the levator and tensor palati muscles are destroyed, an elastic velum is seldom applicable. Another serious objection to the use of soft rubber in the mouth is its rapid deterioration, thus giving rise to putrefactive changes, which often cause inflammatory reactions in the parts with which they are in contact.

(TO BE CONTINUED.)

DENS SAPIENTIÆ.

BY J. W. CLOWES, D. D. S.

I have the habit, while engaged in my professional work, of talking upon the subject of my own thoughts, or one suggested by my patient, and am thus enabled to attract the mind, in some degree, from unpleasant conditions. This faculty involves not only the ability to talk while I work, but to work while I talk, and time and progress, without detriment, keep equal pace.

"Why do we have wisdom teeth? They are useless things—the sources of constant trouble, and an unmitigated nuisance." That was the question and these the assertions of my patient, and this the reply that followed their utterance:

"Wisdom teeth have a sensible designation and providential design. They were wisely given as compensation and as substitution for losses. If they are useless, it is because of their position, and the supernumerary part they have to play. That they are 'sources of trouble' is a matter beyond their control, and this, when rightly judged, should be their vindication rather than their offence. If they are a 'nuisance,' it is by compulsion and not by choice. Before speaking further of those teeth, I premise that, in rare instances they have but a meagre development, and still more rarely have neither development nor eruption at all. This shortcoming is from lack of material, and is no more to be charged against the wisdom teeth than like failures in the central and lateral incisors. Both these classes of teeth, at times, vary greatly from their normal size and shape. In some mouths I have seen wisdom teeth larger than other molars, and in the case of one lady there were

eight of them, well formed and of good dimensions. Wisdom teeth are great travelers; their tendencies are always to the front, and when they move they are sure to better their condition. While it is almost the universal belief that the teeth are what you have declared, the truth still remains that *they are the strongest of all the molars*, and as such deserve our appreciation and care. The testimony on this point is abundant, and may not be ignored nor set aside by unreasoning prejudice or senseless clamor. We prove this strength on one hand by the very constitution and structure of the teeth themselves, and on the other by reasoning from analogy. It requires but little observation to discover that first molars are very weak teeth, having from three to five defects in their enamel, the second molars from two to three, while the wisdom teeth have seldom or never more than one. These imperfections are the open doors through which the causes of decay enter and destroy the dental substance. Thus we see, by a fair comparison of the facilities for attack, that wisdom teeth are five times as strong as first molars, and three times as strong as second ones. In the laboratory of Nature, when she sets about the work of production, the things she is longest in evolving and maturing are the staunchest and most lasting. If we consider the fruits, the bough apple and the summer pear have a rapid growth, are insipid in taste, and their duration and flavor are as the evanescence of a dream. The pippin and winter nelis pear develop slowly and surely through the autumn days, and with extended time their excellence increases as their juices are refined by the alchemy of the ripening sun. Do we desire a ship? We would not wisely go for material to the whitewood, the ailanthus or other fast-growing trees, but to the unbending oak that has breasted, for a hundred years, the sunshine and the storm! First molars are the product of infantile growth. Their inception, advance and fulfillment, are expressions of weakness. Their mission is intermediary and transient, and their retention, after the twelfth year, a danger too serious to tolerate. They are the great mischief makers of the human mouth. Crowding, irregularity and decay, are before them and behind them! They are the pivotal centres of dental unrest. Remove these teeth and room and regularity will ensue. Take them away and the approximal sockets will contain no ill. Banish them, and the second molars, stronger in constituents, maturer by time and systemic force, will assume

their vacancies. Get rid of them and the wisdom teeth, healthful and strong, without obstruction, will nobly fulfill their destined purpose. There are men in my profession who are always ready to extract wisdom teeth on sight. They have never had an independent thought regarding these teeth. The test of their fathers is their test, and they are content to abide there. Has Nature belied her record in the wisdom teeth? Are twenty years and the fullness of their strength less capable than the puling six or the inchoate twelve? The *Dens Sapientiæ* of human mouths is a freedom-loving tooth. Unjustly restricted, its struggles for relief are fearful to witness. 'Cabined, cribbed, confined,'—held fast in bondage—its throes for liberty will carry all before it, and mind and matter suffer an eclipse. In this condition it is the greatest source of nervous irritation, and here I verily believe does epilepsy have its fountain head. Like many worthy ones we know in this purpose-crossed world, '*Dens Sapientiæ*' is unfortunate through circumstance, and should not be judged by its surroundings. Give it fair play—give them fair play, and the full sum and measure of their merits would be wonderous to behold."

MURIATE OF COCAINE.

BY DR. W. D. MILLER, BERLIN.

I have been using this substance now for some months, and my experience has been such that I was not a little surprised when I read the reports of the wonderful effects produced by the application of a two per cent. solution. I began my experiments with a four per cent. solution, which in the great majority of cases I found so ineffective that I rapidly increased the strength, now employing nothing under a thirty per cent. solution.

It has also been used to a considerable extent at the Dental Institute, in the same strength; and in this strength, in some cases, not in all, it works excellently as an obtunder of sensitive dentine. It may also be used to advantage in performing operations upon the dental pulp, and for anæsthetizing the sometimes extremely sensi-

tive and painful gum before applying the rubber dam; here I have found its effect most grateful.

It is, however, not the object of this letter to present my views on cocaine muriate, but rather those of Dr. Sachs, of Breslau, which you will find in the accompanying letter. On the whole, I regard cocaine muriate as a valuable addition to the dental pharmacopœia, but by no means one of unlimited value.

Dr. Sachs writes as follows: "I first tried a two per cent. solution to relieve the pain in the sensitive dentine, but without success. I then used a ten per cent. solution, which in certain cases worked extremely well. For so-called sensitive dentine this solution is not very efficient, as it cannot act on the pulp when there is a thick layer of dentine between. But in those cases where the cavity is very large and the pulp nearly exposed, the pain of excavating is almost entirely done away with. The success is particularly apparent in very soft, chalky teeth. I had lately to excavate a first lower molar for a Miss of twelve years; the tooth was so sensitive to the instrument that the patient would not allow me to continue. I used a ten per cent. solution of cocaine, and after about one minute the sensitiveness was so far reduced that I could easily remove the great thick masses of softened dentine with a spoon-shaped excavator; but, unfortunately, the insensibility was so complete that in my joy over the success I worked too energetically, and exposed the pulp; but even this the patient did not notice.

"Since then I have often used cocaine, and in very many cases with brilliant success, so that I consider this medicine a most valuable contribution to our materia medica.

"I have used it, also, with the greatest satisfaction in cases where the sensitiveness of the soft palate is so great as to render the operation of taking an impression exceedingly disagreeable, if not impossible. I paint the whole soft palate and the surrounding soft parts with a two per cent. solution, and am able, after about one minute, to take a good impression without the least difficulty.

"In excavating, I use the material in the following manner: First, I adjust the rubber dam and dry the cavity, dip a pellet of cotton into the solution, and leave it for about a minute in the tooth; then remove it and again dry the cavity thoroughly, using the hot air syringe, and then begin to excavate. If the solution remains in the tooth too long, the anæsthetic effect is almost or quite lost."

PRACTITIONER AND INSTRUCTOR.

BY C. E. H. PHILLIPS, D. D. S., NEW YORK.

Every practitioner of dentistry should be a teacher as well; not alone in the instruction to his patients as to the care of their teeth and surrounding tissues, and in the proper use of the brush, but carefully to impress upon parents the great importance of giving early attention to their children's teeth, though they be "only the temporary ones."

Upon this subject there is surprising ignorance. Almost daily are such questions asked as "Doctor, do you advise filling temporary teeth?" or (with marked surprise), "A friend of mine has had her child's first teeth filled by her dentist—is this proper treatment?" When in reply it is stated how *very proper* such treatment is, and why, the surprise is not diminished, and one is almost sure to have a little patient added to his list, with the self-consciousness of having prevented much suffering to child and annoyance to parent.

Few parents appreciate the value of deciduous teeth, and the family physician heretofore has too often advised their extraction as soon as they became troublesome. The intelligent physician today, recognizing dentistry as a specialty of medicine, when these little sufferers come to his notice sends them to the dentist for treatment, and teeth are now saved instead of being sacrificed, as was formerly the case.

Some patients imagine that they carefully inspect their children's teeth, and do it frequently. This is not sufficient, as irregularity may take place, or decay form in localities capable of being detected only by the glass and instruments, in hands schooled to their use.

Advice imparted to those having children in their care as to the importance of an early visit to the dentist, will be gratefully received. It should be urged not only to prevent pain, which is likely to follow decay, but that these teeth, though "only temporary," should be retained in good condition for masticatory purposes, thereby bettering the general health. When this and the intimate relation the deciduous teeth bear to the permanent ones (the germs of which are at the same time present), and the development of the maxillary bones consequent upon their retention have been made known to patients, then, and then only, has the dentist's duty been performed.

THE PAINLESS REMOVAL OF LIVING PULPS.

BY DR. G. M. MERRITT, JERSEY CITY.

As it is often necessary to remove a living pulp, especially in mounting artificial crowns, it is very necessary for the comfort of the operator as well as the patient, that it should be done in a thorough yet painless manner, and often, if not always, at the first sitting. My method is as follows: we will suppose that a superior central incisor has the crown decayed and broken away, yet possessed of a live, healthy pulp, well covered with dentine. With a stump corundum, while kept wet, I grind the end of the root down until the patient manifests a disposition to flinch, owing to the close proximity of the stone to the pulp. I then put a Morey nerve canal drill in the hand piece, and keep it in readiness. Saturating a pledget of cotton with ether, and holding it on the end of the root and surrounding gum for one minute, I remove it and quickly place my drill in the center of the end of the root, and with a few quick turns of the engine I am able to penetrate quite to the apex without a particle of pain, or a word of remonstrance from the patient. This operation I have performed a great many times, and have never had but one patient say that it occasioned pain. In that exceptional case a lady was very anxious to know just what was to be done with each particular instrument, and I was foolish enough to explain each step in advance. She suffered more from apprehension than from actual pain, but her imagination made her think it hurt her. I have tried the knocking-out plan, described some time since by Dr. Mills, but have not had the success that I desired. I do not know that my plan is new, yet I have never seen an account of it reported in any of the journals, and as it has served me well I report it for the benefit of others.

MORE PREHISTORIC DENTISTRY.

BY W. H. WAITE, D. D. S., LIVERPOOL, ENGLAND.

There are in the "Brown Museum," in Liverpool, two specimens similar to those figured in the January number of the INDEPENDENT PRACTITIONER.

One consists of a gold band enclosing the right upper canine and left central, with spaces and rivets for right lateral and central. The artificial crowns are missing, but the two natural teeth are in good preservation.

The other is a similar gold band enclosing two laterals, in order to carry two artificial centrals. The latter are evidently carved out of some hard ivory, and make a fair substitute. They are in good condition, with the gold rivet passing right through, but the natural teeth to which this case was attached are wanting.

These precisely resemble the specimens illustrating Dr. Van Marter's paper, and do not need further illustration.

Judging from the fact that these gold bands, which are about an eighth of an inch deep, must have passed up well on to the necks of the natural teeth, and also consdering the depth of the artificial crowns, I am disposed to think these two cases were designed to replace teeth which had loosened and come away, rather than teeth which had decayed. It is difficult to conceive of these deep bands going up into place, if the gums and alveolar were in normal position.

The specimens I have seen belong to a very celebrated collection of antiquities made by Mr. Mayer, of this city, and presented by him to the museum in 1867. Beyond this I could learn nothing, except the fact that they are recorded to have been found in Etruscan graves.

A SUCCESS WITH COCAINE.

BY J. SMITH DODGE, JR., M. D., D. D. S.

Mrs. G.'s teeth have for many years been one of my extreme cases of rapid and discouraging decay, with very great sensibility. Nothing but patience and plastics could have kept any of them in her mouth. This lady came in the other day with a spot so sensitive that she could not touch it without pain, and she hardly thought I could do anything with it. It proved to be a broad, decalcified patch, caused by a clasp. The softened dentine was still in situ, and the gentlest probing was hardly tolerated. To this surface I applied, without much hope, a drop of the five per cent. solution of the oleate of cocaine. This is not an oily solution of the hydrochlorate, but a

true chemical union of oleic acid with cocaine, bearing such a relation to the hydrochlorate as, for instance, the acetate of morphia does to the sulphate. The surface was gently dried, and the saliva kept at bay, while a drop was applied and allowed ten minutes to act. There was then a decided lessening of pain, but too much still remained. Another drop was applied for ten minutes, and then the entire mass of decalcified dentine was removed, and the sound dentine scraped without pain. The pulp was nowhere nearly approached. A more perfect result I cannot conceive.

Reports of Society Meetings.

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

FORTY-FIRST ANNUAL MEETING AT CINCINNATI, MARCH 4, 5 AND 6, 1885.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY E. G. BETTY, D. D. S.

The meeting was called to order at 10 o'clock A. M., with President Van Antwerp in the chair. After the transaction of routine business the following programme was offered for consideration:

I.—Progress of Dental Education.

II.—Recent Theories Concerning Caries of the Teeth.

III.—New Remedies for the Treatment of Oral and Dental Diseases.

IV.—Improvements in Prosthetic Dentistry.

V.—New Methods and Materials for Filling Teeth.

VI.—Incidents of Office Practice.

The first subject being announced for discussion, Dr. Otto Arnold, of Ironton, O., presented a paper, of which the following is a synopsis: There is no doubt in the minds of any of us that the profession is progressing in many ways, and that, too, very rapidly ever since the "turnkey" was discarded, and attention was directed to the conservation of the organs of mastication. The dental prac-

titioner is now paying more attention to the materia medica and therapeutics of dentistry than formerly, yet not to that degree the progress in other branches of the art demands. Many of the symptoms of first dentition require urgent treatment at the hands of the dentist, and he should be qualified to diagnose his case, and prescribe for it on general medical principles.

The eruption of the *dens sapientiae* often causes disturbances of the general system that call for remedial agents, and it is the office of the dentist to be prepared to treat rationally and relieve the intense suffering that frequently accompanies these dental lesions.

It is gratifying to know that more attention is now being devoted to this branch of the art, and that the colleges are, by their system of education, preparing the dentist of the future to deal in an intelligent manner with such diseases and disturbances as have their origin in the mouth.

Dr. A. Berry, of Cincinnati, also read a paper upon the same subject. The progress being made in dental education is very gratifying; formerly the practitioner was not a man of liberal education, as there were no colleges, no journals, no societies; the dentist was an isolated being, did not confer with his neighbor dentist, nor have anything of a social feeling towards others also practicing. Any one wishing to become a dentist was obliged to go to a tutor for practical instruction, and had to rely on the medical profession for such knowledge as he might need in anatomy, physiology, materia medica, chemistry, etc. The elevation of the profession to its present level was a gigantic task, and was only accomplished by the associated efforts of the colleges, the journals, and the societies. The founders of the colleges builded well and wisely, and time has demonstrated the wisdom of their efforts. In those early days there were no dental depots, no instruments and appliances for sale, with the exception of the "key" and a few badly made forceps. The dental depots in all our large cities now furnish all that is needed by the most exacting dentist, and are often the means of teaching a great deal by the manufacture and exhibition of improved appliances.

To further the progress of education the terms of the colleges should be lengthened; as it is now, the five months allotted to study are shortened by holidays, etc., to eighteen weeks, the two courses required yielding but thirty-six weeks in which to prepare the stu-

dent for practice, which is entirely inadequate. The essays, discussions and clinics at the society meetings, aid very much in spreading knowledge, and the twenty journals published are a great boon to the profession. The enactment of laws by the various State legislatures for the regulation of practice has wrought much good, by excluding the incompetents. There should be increased care in the editing of our journals, and the articles of contributors should be more condensed, and to the point.

Dr. R. J. Parre, of Cincinnati, then read parts of a paper bearing upon progress made in the diagnosis of constitutional diseases having their origin in dental lesions.

Dental lesions are often productive of constitutional disturbances, and though there is no lack of ability in our profession to cope with them, yet the dental practitioner needs to be awakened to the necessity of preparing himself to take hold of them with intelligence. The progress made in dentistry during the past twenty-five years has been very great, and is evidenced by the colleges that educate, and the new and improved methods perfected as experience dictates.

The difference that exists between the professions of medicine and dentistry is mainly due to the fact that we are educated exclusively for the practice of a specialty. The age of the "turnkey" has passed away, and the medical profession has, in a measure, come to depend upon dentists for assistance and consultation in such cases as involve a detailed knowledge of our departments. When the mouth is the seat of disease, poisonous and acrid secretions find their way into the stomach, disorder it, and entail a whole train of constitutional effects, more or less serious in their character. Loosening of the teeth is one of the effects of scurvy, and this disease gives rise to complications that often have the most deleterious effects upon the system.

As an illustration, I may mention a case in which blood poisoning was produced from the secretions incident upon the disease set up by the root of a dead tooth in the antrum. The root was removed, antiseptic dressings injected into the antrum, and the constitutional symptoms all disappeared.

The time has arrived when the two professions must extend courtesies to each other, and I may conclude with the statement that dentists should contribute freely to the medical journals.

FIRST DAY P. M. SESSION.

Prof. J. Taft—The subject of professional education is one upon which there is a great variety of opinion. Some wish to have it confined to small limits; others would have it branch out somewhat, while other extremists would have it embrace the whole field of human knowledge. That is too much, for in this day the disposition in all branches of investigation is for each to confine himself to one thing, and study it thoroughly. There was also much difference of opinion in the past, but the workers who founded our colleges were practically a unit, and included such men as Harris, Koecker, the Parmleys, and others, in the East, and Taylor, Melancthon Rogers, and others, in the West. These men were in advance of their profession in their day, and were they living now, they would still lead the van. The Baltimore College and the Ohio Dental College were the outgrowth of the opinions and energies of these men. To them also is due the credit of having organized the associations. The American Dental Association, from the first, took a high stand in this direction, and has since maintained it. (The professor then read extracts from the proceedings of the "College Faculty Association," held at Saratoga Springs last August, showing what action had been taken by the colleges to perfect and elevate the standard of requirement, and the action taken regarding a preliminary English education.) From 1840–45 there was a rapid increase in the numbers of those engaged in the practice of dentistry. A change is now taking place, and it is owing to the influence of professional journals and associations, making the profession take a higher place as a science and in the estimation of the public. The opinions as to what elements should enter into a dental education are very diverse, and have been much discussed. It is a matter of impossibility for any man to go over the whole field of literature, and equally so of science. Aside from this, general knowledge is necessary to better facilitate the practice of dentistry, so that it will profit a man to gain as much knowledge as possible upon any subject bearing in any way upon his specialty. He who has a large stock of general knowledge has a better fund to draw upon; his intellectual training is much better; he is intellectually more vigorous, and the better able to practice any branch of medical science. The more the man has, the more power does he possess, and his influence upon those about him will be the greater in proportion.

The man with strength is the man who tells; the man with the most money is the most powerful among those with whom he comes in contact; and so it is with him who has the greatest knowledge and best mental training. In our discussions of this subject we are apt to forget that men differ greatly in capacity. A man asks, "What shall I study?" It is best for him to study that for which he is best suited, as he will accomplish more good in that way. The man who is perfect in prosthetic dentistry is just as honorable as he who confines himself to surgery, or the treatment of disease.

Dr. A. O. Rawls—I did not come prepared to say anything on this subject, though I have my views upon it. I have watched the progress as indicated in the journals, colleges, etc., and am satisfied with it, as compared with that of other professions, and am proud to be a member of the dental profession. Not only have we progressed rapidly, but we have outstripped all other professions, and stand at the head upon all topics pertaining to special science, art, and literature. In the science of biology, who is ahead to-day? Is it not the dentist? Where did we get our splints to reset fractured jaws, our plastic operations, etc.? Did we get them from medicine? No! We are apt, in noting the standard of dental education, to consider the standing of dental colleges as all-sufficient for the position we occupy; but it is not so.

Prof. Taft represents one of the best colleges in the world, and he sends out students who, if they conducted themselves strictly as they are educated, could not live, for the reason that the great public is not intelligent enough to appreciate such a standard.

Dr. H. J. McKellops—I did not expect to say a word upon this subject when I came to the meeting of this, the oldest society in the world, and one of which every one should be proud to be a member. We must be a profession by ourselves, or not be any. I take great interest in dentistry, and in the education of dentists. Mere graduation does not fit a man to diagnose conditions of the mouth. I wish every man here would read the life of John Hunter. He was a man who investigated for himself, and by his studies discovered that which made him a dentist. Forty years ago Dr. Patrick was a diamond setter; what is he to-day? One of the most prominent and honored men in the profession. If we are going to be a pro-

fession, let us *be* a profession, and not hitch on to anything. We have competent professors, and we must educate ourselves. I love dentistry, and that is why I go from place to place visiting the societies. If I did not I would rather stay at home, mix up a little amalgam in a cup, and imagine that this was the agent that was to revolutionize the world. (Prolonged applause.) The revolution we want is in the *clinic* rooms. The man we want is he who goes into the clinic room and *demonstrates;* not he who writes unintelligible symbols on the blackboard. I wish I had the language to express all I think upon this subject, and carry conviction with it.

Dr. F. W. Sage—I am not opposed to a liberal education, but I do not favor a smattering of many things. We should stimulate the young men to study that which is best for them to know.

Dr. McKellops—I wish to God that I was one of the distinguished men of the dental profession. Dentists did not go across the water to bring professional knowledge here. We teach those men over there, and they anxiously look to this country for every flash of light that sparkles from our distinguished men. What are the journals there? They are an almost exact *fac simile* of our own. If one sits down to make a living only, he does not become enlightened; to become so he must read, study, and search into nature, to discover her truths.

Dr. A. Berry—I heartily agree with our distinguished visitor from St. Louis. I can hardly say visitor either, for he is one of the old, though not of the earliest members of this association. The young men should follow his advice, by reading and studying all that comes their way, particularly all that bears upon our profession.

Prof. Taft—No one has advocated the study of all science, but no one can object to a reasonable preliminary education. Some reference has been made to the colleges as being responsible for the status of the profession. Bear in mind that the colleges are restricted in the results they can obtain; up to a certain point they lack the support they should have; they have gone on as fast as they can be sustained and supported. When students come prepared with a good English education, *then* the profession will have accomplished a great advance. It is coming; the public requires it, and the other professions demand it of us.

Dr. McKellops—I cordially endorse Prof. Taft's remarks, but they do not strike the key-note. As things are now constituted it is impossible for a dental college to give any demonstrator a sufficient fee to command all his time, and this is where the colleges miss it. If men are thoroughly drilled they will not be incompetent; if one is drilled by a demonstrator capable of thorough teaching, when he goes out of the college he will have acquired that which is most necessary. The clinic is where the young men should be taught, and thoroughly taught.

Dr. A. G. Rose—I wish to say a word in behalf of the young man in dentistry. He is hounded down by everybody, and said to know nothing, whereas he *does* know something, can do pretty good dentistry, and is able to take care of himself.

Dr. G. W. Smith—I imagine the trouble is, that when we leave college we settle down and make no further advance, by lapsing in our studies. It would save the colleges much trouble if dentists would take more students into their offices, and teach them studious habits.

Dr. R. J. Parre—A fair literary education is necessary, and if any man without it enters the profession, it is the fault of his preceptor. There is a future before the profession, and a great change for the better not far off. We have reached that point where we should make better history.

Dr. Jas. Leslie—Over the water there is a total absence among the dentists of that desire, so common here, to be recognized as practitioners of a branch of medicine.

Dr. Geo. W. Keely—Dr. McKellops sympathizes very much with the demonstrators, and rightly. I doubt if there is a dental college in the United States whose teachers are able to live upon the salaries paid to them. I think a great point of progress in dental education to lie in the establishment of four great schools, one each in the North, East, South, and on the Pacific Slope. (Applause.) We could then concentrate our energies upon them, endow them handsomely, and so allow the corps of teachers to devote their entire time to preparing students for the thorough and scientific practice of their profession. To secure this, laws should be enacted and enforced, requiring students to prepare themselves in these colleges.

Adjourned till Thursday morning.

(TO BE CONTINUED.)

NEW YORK ODONTOLOGICAL SOCIETY.

REGULAR MEETING, HELD AT THE RESIDENCE OF DR. S. G. PERRY, FEBRUARY 17, 1885.

A paper was read by Dr. E. A. Bogue, having for its subject certain articles published in the New York *Medical Record*, on the "Retention of Dead Teeth in the Jaws." He said, first, that *pulpless*, and not dead teeth, are under consideration.

Fillings are not the direct means of retaining pulpless teeth, but are stoppers to prevent the entrance of deleterious matter through the apical foramina, or through cavities opening into the mouth.

Fillings should be inserted before suppuration and the throwing off of mephitic products has begun.

If, through neglect, the pulp has become decomposed, the putrefactive products should be removed, root canals cleansed, deodorized, dried, and asepticized like a mummy. When this is done the contents of the dentinal tubuli are rendered bland and innocuous as a hard boiled egg.

The cementum being of low vascularity, is no more affected by contact with dentine thus treated, than by the vitrified dentine of the octogenarian, and the tooth fulfills its function with comfort.

If a dead pulp be allowed to remain in the tooth, the cementum may be contaminated through the dentinal tubuli, and the pericementum absorb the morbific matter.

Many failures in treatment of teeth with dead pulps may be attributed to a non-recognition of this fact.

Teeth having their pulps removed, root canals made aseptic and accurately filled, even with cotton, seldom give any trouble; but teeth containing dead pulps are open to most of the objections recently brought against them.

Arsenic used as an obtunder has often caused death of pulps, long after the operations have terminated.

Teeth "divested of periostial nourishment by tartar" usually cannot be retained in the mouth, and often fall out of themselves. Tartar may be an effect, and not a cause of disease.

If diseased teeth, which originate the reflex troubles met with by oculists and aurists, cannot be treated so as to render them comfortable, there is no doubt as to the advisability of extraction.

In conclusion, Dr. Bogue said he should be glad to have medical schools give sufficient instruction to enable physicians to diagnose pulpless teeth in a good condition from dead teeth.

MARCH MEETING.

A regular meeting of the Society was held at the residence of Dr. C. E. Francis, 33 W. 47th St., Tuesday evening, March 17th, Dr. W. Jarvie, presiding.

Dr. S. G. Perry—Exhibited a plaster cast representing teeth much abraded on their anterior surfaces, and supposed to have been the result of vigorous brushing.

Dr. C. E. Francis—Did not believe such conditions should be charged to the use of the tooth-brush. He had seen many cases where teeth were badly abraded, which he was positive were not injured in this manner. He had, that very day, seen in the mouth of a gentleman a number of teeth deeply grooved, front and back, indeed nearly girdled, and with furrows extending almost to the pulp canals. The abraded surfaces were hard and smooth, yet much stained, showing little evidence of over-brushing. He was puzzled to know what could have caused the peculiar condition of these teeth.

Dr. J. B. Rich—Described a case where the teeth were seriously denuded, and in such a way that the trouble could not have occurred by brushing. He also cited another case in which an excellent set of teeth became ruined by a too free use of lemons. The enamel was dissolved away, and the dentine so eroded all around that the pulps were nearly exposed. It was the most astonishing destruction of tooth structure he had ever witnessed, and the mischief had all occurred within a brief period, he having examined the teeth about a year before and pronounced them in an excellent condition.

Dr. F. Y. Clark—Thought that some agents or exudation from the margin of the gum, had much to do in causing the conditions described.

Dr. N. W. Kingsley—Believes that abrasion is due to conditions, and that other agents besides the brush aids in this destruction. He instanced a case where entire surfaces of a number of teeth were abraded, probably by the brush in part, but assisted by other agents. Statements of abrasion from brushing, he thinks, are much exaggerated.

Digressing from the subject, Dr. Kingsley took the occasion to speak of a favorite drill which he had the misfortune to break, but to his delight he found that the broken end of the stub proved an excellent substitute, and would cut splendidly. He suggested the idea of using broken drills, which were sometimes better than the original.

Prof. Frank Abbott—Formerly thought that the abrasion of teeth was due more to a solvent than the brush. He had, however, since discovered that natural grooves or waves which are sometimes found on the surfaces of teeth, are starting points for such trouble. The brushes get into these furrows and work them deeper, and solvents assist in the destruction.

Dr. F. H. Lee—Presented the root of a central incisor to which was attached a tooth crown of the Buttner style. It was a specimen of "prosthetic dentistry," from a somewhat noted establishment in New York. It had caused much annoyance and pain, and Dr. Lee extracted it. In preparing the root for pivot-anchorage, the drill, instead of following in line with the pulp canal, had diverged, passing diagonally across and through the root into the alveolar territory, and the end of the gold pivot appeared on the side of the root. As a specimen of "high art" it was viewed in the light of a curiosity.

Dr. W. T. Laroche—Read a very interesting paper, relating his experience in a case which, viewed from a medical standpoint, is worthy of much consideration. A gentleman, twenty-seven years of age, suffering intense pain of a neuralgic character, called on Dr. Laroche to consult him in regard to his condition. He had already been treated by ten physicians, all of whom made efforts to relieve his suffering, but without avail. The patient at times became delirious, and was treated for brain disorder, but with no benefit. A celebrated specialist was consulted, who, after carefully examining the patient, advised him to call on Dr. Laroche, as he thought his teeth might in some way be the cause of his suffering. In looking carefully into the matter, Dr. L. came to the conclusion that the pain was due to a retarded development of the third molars, which caused irritation to the facial nerves, so he decided on their removal. It was found, however, that their position rendered this a most difficult undertaking; indeed, they could not be reached. As it seemed imperative that relief should be afforded, Dr. L. extracted the

twelfth year molar on the side most affected, with the view of making room for the wisdom tooth to work up. The pain was lessened on that side, but on the opposite side was so severe that the other superior second molar was taken out. For a time the patient felt somewhat easier, yet at intervals the pain would recur, and after a time was as violent as ever before, and the patient became nearly frantic. It was then decided that the inferior second molars must be removed, and these in turn were extracted The roots of all the second molars were considerably exostosed.

As with previous operations, a modification of pain for a time followed, but soon to return with unwonted vigor. Searches were subsequently made for the third molars, which in the course of time were taken out, yet with extreme difficulty, as they were so deeply and firmly imbedded in the bone. The roots of these were also exostosed.

With the removal of the last wisdom tooth the pain, which for so long a time had baffled all efforts to dispel, disappeared, and the patient recovered health, strength and comfort. The treatment at the hands of Dr. Laroche covered a period of nearly three years.

The whole trouble was evidently due to exostosis, which previous medical treatment failed to control, and was only alleviated by a well-directed use of forceps.

Editorial.

COCAINE IN DENTAL PRACTICE.

Probably quite enough has been said upon the subject of Cocaine to enable the profession to comprehend its proper place in the dental pharmacopœia. Sufficient of testimony has been given, and a fair verdict upon its merits may be pronounced without much risk. It is not all that the profession has been looking and hoping for. It is not entirely reliable as an obtundent of dentinal tissues. It *is* a local anæsthetic, probably the most potent in its effects upon soft tissues of anything yet discovered. Its results are, however, principally confined to such tissues as have a distinct nervous supply. The manner in which Cocaine, a drug that was announced as a local anæsthetic, was received by the dental profes-

sion, and the sanguine expectations and even confident assertions of what would be and were its results when applied to non-vascular and nerveless tissues, is rather a severe comment upon the heedless and unscientific way in which we too often use drugs.

All true anæsthetics paralyze nerve tissue, commencing at the periphery and proceeding toward the nerve centers. Their specific effect is upon the nerves themselves, and they are brought in contact with them by being carried through the arterial supply, and hence their first impression is upon the terminal filaments. Local anæsthetics, on the contrary, are not distributed through the general circulation, but are placed in direct contact with the peripheral ends of the nerves at once, and manifest their peculiar properties only upon the nerves which are thus brought within their immediate influence. Cocaine is such a local anæsthetic, and when tissues having a nervous supply are submitted to its action, either by hypodermic injection or through absorption from topical application, its regular characteristic effects are manifested.

The great desideratum in dentistry is a drug that shall obtund sensitive dentine, a tissue that is without nervous supply. In just what manner sensation is conveyed through the protoplasmic and nerveless dentinal fibrils, has not yet been ascertained. When this problem has been solved, we shall be much nearer the discovery of a reliable obtunder of sensitive dentine. In the meantime, we are grasping at straws in our search for a grand specific that shall combine quite contradictory qualities. Without the knowledge that should enable us scientifically to apply a proper remedy, we are empirically trying the most diverse drugs. More than one formula has been confidently offered, that was composed of drugs that were glaring "incompatibles." We are in the condition of physicians who are blindly prescribing without having been able to make a diagnosis. The first thing to be done is to determine the exact nature of the dentinal filaments, and their precise connection with the nerves themselves. Much has been done during the past few years, but more remains to be accomplished. When we are intimately acquainted with the tissues with which we have to deal, we may hope to intelligently apply a remedy for any pathological condition.

Cocaine has no more effect upon nerveless tissues than many other things that might be named. For obtunding dentine it is of no

more use than are some remedies that are not local anæsthetics at all. It is the universal experience with such obtunders as have attained any degree of popularity at all, that in some cases they are perfectly effective, and in others as complete failures. This seems to be the fact with Cocaine. As a local anæsthetic, the results of its use upon soft tissues are amazing. In certain teeth of a loose histological structure, teeth in which the living portion has a high organization while the inorganic is deficient and poorly crystallized, the application of Cocaine has produced marked results. But in such cases alcohol, and ether, and chloride of zinc, and preparations of morphia, and chloral-hydrate, and many others, have been known to work wonders. Yet none of these are unfailingly and in all cases effective, and Cocaine seems to possess comparatively little advantage over some of them in this respect.

As a local anæsthetic for soft tissues, it will always occupy a distinguished place, but as an obtundent of sensitive dentine it cannot be unfailingly relied upon.

A CASE IN PRACTICE.

In the March number of this journal "Modern Dentist" asks what shall be done with devitalized teeth, filled according to the practice of long ago, when the canals were left open and a hole was bored beneath the gum for drainage. An instructive case of this kind lately fell into our hands. Twenty years ago a dead second superior molar was filled without special treatment. Abscess supervened, and an opening was made beneath the gum. During all the long intervening period caries had not attacked the cavity made by the drill, nor had there been absorption of the alveolus and recession of the gum sufficient to bring the drainage hole to the surface. On the contrary, the continued periostial irritation had resulted in exostoses, or hypertrophies, not only upon the roots of the molars, but on the alveoli as well. Large nodules could be plainly seen and felt upon both the buccal and lingual walls, and the tissue presented a peculiarly rough and ragged appearance. The adjoining wisdom tooth, which was extensively decayed, was with difficulty extracted, and subsequently the offending second molar was removed. The roots of both presented unusually large hypertrophies. The patient stated that, while there had been no pain of an acute character,

there had never been a time when the region was free from a vague uneasiness, at times approaching a dull, sub-acute distress. It is not pleasant for an intelligent person to reflect upon the condition of that mouth during this long period. The discharge of pus must have been exceedingly disagreeable, to say nothing of the exposure to danger of pyæmia from its possible absorption, or the hazard of necrosis from an acute inflammation.

Such treatment at the present day would, by most competent dentists, be called malpractice. When these cases come for treatment, it is necessary first to obtain direct access to the pulp chamber and the nerve canals, by an opening through the crown. If there be a large proximal filling this may be removed, and an approach thus secured. The buccal opening should then be permanently closed, and the usual treatment resorted to until the discharge wholly ceases and the tooth is rendered thoroughly aseptic, when it will usually be found that all the disturbed territory has returned to a healthy condition.

THE CASE OF GENERAL GRANT.

We need not commend to the thoughtful consideration of every dentist the article upon the condition of General Grant, written at our urgent request, and published in this number. It will attract the attention of all. It is not offered as a contribution to the sensational literature of the day, nor to gratify a morbid curiosity. The case is one of great professional interest, and it is full of instruction to both dentist and physician. That the oral condition may be, and often is, a prime factor in inducing malignant tumors of the mouth, is a fact that cannot be too quickly and thoroughly comprehended. General Grant was a smoker, and every anti-tobacco crank in the country immediately jumps to the conclusion that the disease that is slowly but surely eating out the life of the most distinguished man of his age is the direct fruit of the cigar; whereas, aside from the fact that the smoker's mouth is seldom in a cleanly condition, tobacco probably had little or nothing do to with the origin of the tumor. The case should most certainly be thoroughly investigated from the dental standpoint, that it may prove of greatest benefit to others, for this instance is not at all unique. In the next number we shall publish, from a competent source, an article upon epithelioma, which cites more than one analogous case.

THE ORIGIN OF MEDICAL SCIENCE.

We wish that every one could read the address of Prof. Whittaker, published in that excellent journal, *The Cincinnati Lancet and Clinic*, for March 14th, that they might learn from what a maze of superstition and ignorance medical science has been evolved. Its origin seems to have been with the priesthood of antiquity, who pretended to medical lore that they might the more easily hold the people in religious bondage. To this day the clergy love to dabble in empirical medicine, to assert the supremacy of theology over practical science, of metaphysical speculation over physical demonstration. Many a poor sufferer has owed his death to the meddlesome interference of a medically ignorant priest. The clergy may be excellent advisers concerning spiritual affairs, but they usually make sad blunders when they meddle with physics.

"NOTICE."

We desire to call special attention to the modest advertisement of a dentist who desires to change his location, and which will be found occupying a modest place in the advertising pages. We know the advertiser, and can assure any one who has a place such as he desires, that a rare opportunity is offered for securing a coadjutor who is all that a first-class dentist could desire. Although a young man, he has considerable experience, with ability, intelligence and skill of a high order, and he is far from being unknown in the dental profession.

OUR BOOK TABLE.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, *including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery and Mechanism.* By CHAPIN A. HARRIS, M. D., D. D. S. Eleventh Edition. Revised and edited by FERDINAND J. S. GORGAS, A. M., M. D., D. D. S. Philadelphia: P. Blakiston, Son & Co., 1885.

The publication of the eleventh edition of the oldest of our standard text-books demands something more than a passing notice. It marks an era in our professional literature. We use the term advisedly and after due consideration, for the last decade has witnessed such an advance in the knowledge upon which an intelligent

practice is founded, that its first crystallization into our permanent literature may well be considered as a distinctive epoch.

To Chapin A. Harris is universally conceded the position of Father of Modern American Dentistry. He did more to give it its distinctive character, to mark out its future course, to mould and fashion it into what it is to-day, than any other man. That American Dentistry differs from the dentistry of any other country, is mainly due to his writings and teachings. When medical schools were closed against the teaching of dental science, Harris, with his coadjutors, organized an independent college, instituted a new and peculiar degree, and launched dentistry in its own bark. Under the peculiar circumstances of the time there was no other course to take, if we were not to degenerate into mere handicrafture.

The first edition of The Principles and Practice of Dentistry was published by Dr. Harris in 1839, the same year in which he founded *The American Journal of Dental Science*, the first dental journal published, and one year before he established the first dental college in the world. It was a thin, octavo volume, with but a few illustrations, but it very fairly represented the then infant science of dentistry. Although conducting a large private practice, he was constantly engaged in literary work. The publishing of books and journals was not then reduced to a kind of science, as it is to-day, and for many years Dr. Harris was his own publisher. He conducted his private practice, wrote and published books, and edited, and a part of the time published, a monthly journal. How would he have regarded some of the men of to-day, who, with a practice no larger than his own, and nothing else to occupy their time, complain that they have not the necessary leisure for even reading dental journals, to say nothing of a comprehensive study of the literature of their profession.

The second edition of one thousand copies of this work was, by agreement with Dr. Harris, published in Philadelphia, in 1844, by Lindsay & Blakiston, the predecessors of the present publishers. This edition contained many new illustrations, and was considerably increased in size and comprehensiveness. The third edition, of the same number of copies, was published in 1847. The fourth edition, of one thousand copies, was published in 1850. The fifth, in 1852; the sixth, in 1855; the seventh, in 1858; the eighth, in 1863; the ninth in 1866. Each of the last five of these editions consisted

of fifteen hundred copies, and each was more or less revised and enlarged to meet the rapid advances made by the growing science.

Dr. Harris having died in 1860, and the status of the profession demanding that the work be thoroughly revised and enlarged for the ninth edition, Dr. Philip S. Austin, now deceased, was selected to do the work. He was assisted by Prof. F. J. S. Gorgas in the departments of pathology and surgery, and by Dr. Thomas S. Latimer in anatomy and physiology. Each of these men had been associated with Dr. Harris as a teacher in the Baltimore College of Dental Surgery, and under their joint care the tenth edition, of five thousand copies, was issued in 1871. Very much of the work was entirely rewritten, and considerable additions were made to the text.

This large edition sufficed for the wants of the profession for some years, but as the copies upon the shelves of the publishers gradually disappeared, it became evident that yet another edition must be prepared. Since the publication of the tenth edition, wonderful advances had been made in some of the fields of dental science. The histology of 1870 had become a thing of the past. Recent discoveries, by careful observers, had shown that some of the teachings of the tenth edition were erroneous. In pathology the advances had been most marked, and the book had, even in the few years that had elapsed, become almost antiquated. The teachings of 1870 would not answer for 1880, much less for 1885. In mechanics and prosthesis the change in practice had not been so marked, but even here careful revision was necessary. The work of preparing the new edition was entrusted to Prof. F. J. S. Gorgas, one of the editors of the preceding edition, as the man best qualified in all respects for the labor, and the consequence is a book that may almost be called a cyclopedia of dental practice. So great is the contrast with the tenth edition, that it may be considered practically a new book. Much of the matter in the old edition has been struck out as obsolete, or erroneous, yet so large have been the additions that the new work exceeds the size of the old by two hundred pages. Four hundred new illustrations have been added, and many of these are the most valuable that the work contains. Today, Harris' Principles and Practice is the most complete text-book known to the profession.

In addition to the sale of the former editions in this country, the

book has received a large and steady demand from the profession in England, and it has been translated into French. Including the present edition, eighteen thousand five hundred copies have been printed, a most unprecedented sale for a work of this character. The amount paid in royalties to Dr. Harris and his heirs must have amounted to a very large sum, and the copyright money is still paid them.

In writing this sketch of his principal work, it may not be amiss to include a few facts concerning the honored author, for every dentist should know something of the life of one so prominent in his profession.

Chapin A. Harris was born at Pompey, Onondaga Co., N. Y., in 1806. He graduated in medicine in 1830, and for a few years was a general practitioner, when he turned his attention to dentistry. Besides his continual contributions to the *American Journal of Dental Science*, he wrote a "Dictionary of Medicine and Dental Surgery," of which five editions have been published, and he translated from the French a number of works of importance. He died in September, 1860, at the age of fifty-four, from a disease contracted through overwork.

When we set out to write this notice, it was with the intention of presenting a digest of the contents of the eleventh edition of Dr. Harris' great work, and to this end copious notes were made during its examination, and it was carefully compared with the ninth and tenth editions. But limited space forbids the pursuance of this plan, nor is it necessary. It is sufficient to say that the book is brought up fully abreast the advance of thought, and to-day we may take an honest pride in the fact that dentistry possesses such a text-book. Instead of the teachings of Goodsir, and Robertson, and Bell, we have the later discoveries and observations of Kölliker, and Waldeyer, and Miller. In every department it is made complete, and in harmony with the most modern accepted theories. It is an essential in the library of every dental student, and is quite as necessary to the possessors of the earlier editions as to those who have never seen them.

It is needless to say that the publishers have done their full duty, and that the letter press, illustrations and binding, are perfect of their kind.

Dental Surgery for Practitioners and Students. By Ashly W. Barrett, M. B., M. R. C. S., L. D. S., Dental Surgeon to the London Hospital. Philadelphia: Presley Blakiston, Son & Co., 1885. Price, $1.00.

The preface of this handbook informs us that it is intended for the use of the busy medical practitioner, who has not the leisure for a more extended study of dental surgery. Medical men have paid but little attention to oral diseases, leaving their consideration and treatment to the dental specialist, but of late American medical colleges have begun the teaching of such general treatment as should fall within the province of every practitioner. Physicians should at least understand enough of dental diseases to prevent the egregious errors into which some of them are betrayed, and this book seems well adapted to the end in view. It does not pretend to teach special dental practice, but the dental student and practitioner will find in it much to interest and instruct them.

Zahnärztlicher Almanach, 1885. An alphabetical list of all the qualified Dentists practicing within the German Empire, and in Austro-Hungary. Edited by Adolph Petermann, D. D. S., Frankfort-on-the-Main.

This is an annual which has been issued by Dr. Petermann for the past six years. It contains a great deal of information that is useful to the dental practitioner, and is printed in a very neat form. By it we learn that there are in the German and Austrian Empires but 733 qualified dentists. This does not, however, include the dental artisans, who are allowed to practice mechanical dentistry. There is a list of the principal cities with the names of the qualified practitioners in each, and from it we learn that in the City of Berlin, with its 1,230,000 inhabitants, there are but seventy-five qualified dentists. Dresden, with 240,000 inhabitants, has but sixteen. The book contains excellent portraits of Dr. Suersen, of obturator fame, and Dr. Herbst, the originator of the rotary method of condensing gold foil.

A Mother to Mothers. By Mrs. M. W. J. Philadelphia: T. B. Welch & Son, 1885.

This is a revised and enlarged edition of the well-known letters published in the *Southern Dental Journal*. We have before this had occasion to commend these excellent essays. The little work

should be in the hands of every mother, or expectant mother, and its careful perusal might save an infinite amount of misery, and contribute toward an improved generation of men and women. It may be obtained of the publishers.

THE DIAGNOSIS AND TREATMENT OF NASAL CATARRH. By GEO. M. LEFFERTS, A. M., M. D.

If we have a national disease it is probably the nasal catarrh that is so prevalent and common in many portions of this country. Charles Dickens spoke of himself as having "surprised his friends and delighted his enemies by his truly wonderful performance upon the great American Catarrh," during a visit to this country. There is probably scarcely a reader of this journal who is not interested in the subject, through having suffered, either in person or by a near friend, and who is not anxious to know the best method of treatment. To such we recommend this little work, which may be obtained of Lambert & Co., St. Louis.

PROCEEDINGS OF THE AMERICAN SOCIETY OF MICROSCOPISTS. Seventh Annual Meeting, held in Rochester, August, 1884.

Every one of the annual volumes of proceedings of this society has been of permanent value, and they increase in interest from year to year. The present one contains 300 pages, and presents valuable original papers and much matter of scientific interest. The volume is a handsome one, and reflects credit upon the publication committee. Copies may be obtained of the secretary, Prof. D. S. Kellicott, Buffalo, N. Y.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION. Twenty-fourth Annual Session. Philadelphia: The S. S. White Dental Mfg. Co., 1885.

This is a handsome volume, and the contents are very well edited, but the matter has become rather stale through the long delay in publishing. Most of the papers and abstracts of the discussions were given to the profession by the journals, months ago. They had their day, but other subjects have superseded them, and the volume now comes upon us like the ghost of things departed. As a permanent record it is of great value, and this, perhaps, should be the principal object sought in its publication. As a contribution to current literature, the journals long ago forestalled it.

We have also received the following books and pamphlets:

The Present System of Education a Proximate Cause of Dental Decay. A paper read before the Odontological Society of Pennsylvania. By Theodore F. Chupein, D. D. S.

A thoughtful and instructive essay that should be read by every practicing dentist.

Ten Days in the Laboratory of Dr. Robert Koch, of Berlin. By Geo. W. Lewis, Jr., A. B. Reprinted from the *Buffalo Medical and Surgical Journal.*

The Treatment of Diseases of the Skin. A paper read before the section of dermatology and syphilis at the meeting of the International Medical Congress at Copenhagen, Denmark, August, 1884. By John V. Shoemaker, A. M., M. D.

The Oleates. Further investigation into their Nature and Action. By John V. Shoemaker, A. M., M. D.

Art in Dentistry. Injurions effects of vulcanized rubber, and other things to be thought of by those compelled to wear artificial teeth. By L. P. Haskell; Professor of Prosthetic Dentistry in the Chicago College of Dental Surgery.

Cremation Scientifically and Religiously Considered. By Henry Houston Bonnell.

Outline of Vegetable Histology. By Mrs. Wm. Streeter, President of the Section of Botany, R. A. S. Rochester: Davis & Leyden. Price, 50 cents.

Address in Medicine. Delivered before the Medical Society of the State of Pennsylvania, at its Annual Meeting held in Philadelphia, May, 1884. By W. H. Daly, M. D.

Sixteenth Annual Report of the Trustees of the Willard Asylum for the Insane.

Annual Report of the Board of Managers of the New York State Reformatory at Elmira.

Amended Constitution of the American Dental Association, with the Code of Dental Ethics, 1885.

Report of Committee on School Hygiene in Tennessee. By Daniel F. Wright, M. D.

Vital Statistics in Tennessee. A Report by J. D. Plunkett, M. D.

Extensive Burn, involving the Cavity of the Knee Joint. By W. H. Daly, M. D.

Typhoid Fever and Low Water in Wells. By Henry B. Baker, M. D. Reprinted from the Annual Report of the Michigan State Board of Health.

Current News and Opinion.

GENERAL GRANT'S CONDITION.

There having appeared in the medical journals and the daily papers so many statements in reference to the case of General Grant, the condition of his teeth, the cause of their removal, etc., etc., I am induced to give to the profession and the public, through these columns, the facts, as far as they have come under my observation and treatment. On the 8th of November, 1884, General Grant consulted me by advice of his physician, Dr. Fordyce Barker, in reference to the advisability of having the right upper first molar extracted, stating that he had for a week or ten days been suffering from great pain on that side of his head and face, and that his physician had advised the removal of this tooth, as it was, in his opinion, the cause of the trouble. Upon examination I found the tooth dead, with an abscess at the apex of the anterior buccal root. It was considerably projected from its original position, and the neck and perhaps one-half the length of the roots were covered with tartar. I at once coincided with Dr. Barker, that this was probably the cause, in a measure at least, of the neuralgia, and advised its immediate removal, and this was accordingly done. The relief from severe localized pain was prompt and highly satisfactory to the General, as well as to myself. I made no further examination of his teeth at that time, as he expressed a desire to make appointments with me in a few days, for doing what should be found necessary for the health and comfort of his mouth, and for the reason that he wished time to recuperate from the distressing pain and sleeplessness from which he had so long been suffering. On the 14th of the same month I again saw him, and carefully examined his remaining teeth. The first to particularly attract my attention were the second and third right superior molars, posterior to the opening from which I had removed the first molar. Both of these teeth were projected

from a quarter to three-eighths of an inch, being drawn from their original positions; the necks and at least two-thirds of the length of their roots were thickly coated with a dark brown or black tartar, the sockets in consequence being almost entirely absorbed, while the teeth were so loose that they might easily have been removed with the ancient "lead forceps." In addition to this the second molar was very badly decayed, the side wall broken down, and the pulp dead. The surrounding gum was greatly irritated, the inflammation extending to the roof of the mouth, and back into the fauces. Finding these teeth in so deplorable a condition, and there being no antagonizing teeth, I advised their immediate removal, believing, as I did then, and do now, that they had more or less agency in at least aggravating the lesion which then (and had for five months) existed in his throat and upon his tongue. He consented, and I at once removed the teeth. I then removed some of the tartar from other teeth in his mouth, and dismissed him. I again saw him on the 17th of the same month, at which time I thoroughly cleansed his teeth and put in some fillings, all that was necessary to do upon the teeth remaining in his mouth. How long these teeth had been in the general condition in which I found them I am unable to say, but probably (and I judge from all the conditions described) it had been many years. If we take into consideration the highly irritable condition of that region of his mouth, the extension of the inflammation into the vault and down that side of his throat, the rough and ragged surfaces of a broken tooth, and the tartar incrustations, against which the side of his tongue was almost constantly rubbing, I believe that I am quite justified in concluding that here may have been a factor, at least, in the localization of the painful disease from which the General is now suffering, instead of attributing it altogether to the habit of smoking, which seems to be the prevailing opinion, at least among the laity.

The motive that prompts me to write this article is a desire that the case may stand as a solemn warning to all those *advancing in years*, against the tolerance of any rough surfaces (such as are here described) in the mouth, by which the tongue or other tissues may be kept in a state of constant irritation, and that an instructive instance may be laid before my brother dentists.

March 20, 1885. FRANK ABBOTT, M. D.

HYDROCHLORATE OF COCAINE.

For the last few months every medical and dental journal in the land, and nearly every newspaper published, has expatiated to a greater or less extent on the merits of this newly discovered pain-obtunding agent, and wonderful effects have been reported in a great variety of cases where it has been employed. In our dental society gatherings it has proved a theme for much speech-making, and if all that has been stated concerning its practical value in the many cases cited is absolutely "unvarnished truth," the joyous shout of "Eureka" might well resound from every human throat.

But are we not sometimes a little hasty in jumping at conclusions, and do we not allow ourselves to be so overcome with enthusiasm over newly-discovered remedies and appliances that we pass judgment on half trials, and suffer our imagination to fill out the blank?

There is not a doubt that cocaine is an exceedingly valuable agent as a pain obtunder, and is destined to act an important part in the field of surgery, but in our specialty its use must be somewhat limited. To be sure, reports have been heralded from every quarter concerning its marvelous action in all sorts of cases where it has been applied, but we fear that some of the reports are somewhat tinged with "fancy" coloring.

We notice also, that in the hands of different operators like results are not always secured. Some have applied it to sensitive dentine, and report that in every case it has rendered the operation of preparing cavities painless. Others have experimented with great care in the same direction, but with no success. According to reports, the same diverse results have followed where this agent has been applied to exposed and aching pulps, as well as in cases of peridontitis and facial neuralgia. And where a four per cent. solution has proved valueless in some of these cases, other remedies, long in use, have worked nicely.

Several of our enthusiastic friends, failing to secure the desired result in applying cocaine to sensitive dentine, have tried hypodermic injections within the oral cavity, with a view of causing temporary paralysis of the maxillary nerves; but could this be accomplished, such treatment would be far from practicable. Few would submit to it, and few cases would warrant such means.

C. E. F.

PRESERVING TOOTH PULPS.

Apropos of the recent articles on "Capping Exposed Pulps," in the INDEPENDENT PRACTITIONER, I will write you of a method, which, so far as I know, has never been published or practiced except by myself. We are often called upon to fill large approximal cavities in bicuspids and the crowns of molars. The method which I use in such cases, though not strictly "capping," still is sufficiently so to come under that heading. I first cover that portion of the cavity next the pulp with a layer of oxy-phosphate, with which a very small quantity of iodoform has been mixed. This medicated layer of oxy-phosphate has a direct prophylactic influence, not only on the layer of semi-decayed dentine under it, but also on the pulp itself, and seems to stimulate and assist it to recuperative action as well as to prevent any putrescent tendency, and this feature constitutes its peculiar characteristic. In order that no undue pressure may be made on the pulp, I mix the oxy-phosphate quite thin, and carry it to place with an instrument on which a small quantity of cotton is wound loosely. After this layer has set, I fill the rest of the cavity with a temporary filling of oxy-phosphate, in the usual way.

I am aware that carbolic acid and creosote have been used in this manner, and for this purpose; in fact, I have tried nearly everything that has been recommended, but I have never heard that iodoform has been so employed. I have been practicing this method for some time, and on all sorts of cases, in some of which the pulp was actually bare, and so far as I know, I have not had a failure.

For the sake of testing this idea (for I think it is worth testing), I wish that others would experiment with it, and let us know the results.

D. W. B

ILLINOIS STATE DENTAL SOCIETY.

The twenty-first annual meeting of the Illinois State Dental Society will be held at Peoria, Illinois, commencing Tuesday, May 12, 1885, and continuing four days.

The State Board of Dental Examiners will meet at the National Hotel at 10 A. M., Monday, May 11th, at which time candidates for examination must present themselves punctually. The examinations will occupy until Thursday, May 14th.

J. W. WASSALL, Secretary,
103 State St., Chicago.

NEW YORK COLLEGE OF DENTISTRY.

The nineteenth annual commencement of the New York College of Dentistry was held at Chickering Hall, Fifth Avenue and Eighteenth Street, on Monday evening, March 9, 1885.

The degree of Doctor of Dental Surgery was conferred upon forty-six candidates by M. McN. Walsh, Esq., President of the Board of Trustees. The valedictory was delivered by Louis A. Queen, D. D. S., and the address to the graduates by J. Smith Dodge, M. D., D. D. S. The number of matriculates is one hundred and sixty-five.

The graduates are as follows:

Allen, Fremont.....N. Y.	Hawes, Arthur F.....N. J.
Allen, Lyndon C.....N. Y.	Kleinhans, Daniel W.....N. J.
Arndt, Louis.....N. J.	Knox, Leonard K.....N. Y.
Atkinson, Wm. F.....N. Y. City.	King, Lyman S.....N. Y. City.
Beldad, Enrique G. de la.....Spain.	McDougal, Allan S.....N. Y.
Beldad, Ramon G. de la.....Spain.	Mooney, Chas. J.....N. Y.
Blair, Lemuel P.....Maine.	Moore, Joseph W.....N. Y. City.
Brinkman, Max R.....Mass.	Morse, Wellslake D.....N. Y. City.
Cady, Herbert W. F.....N. Y. City.	O'Brien, Henry L.....N. Y.
Cochran, Robert H.....Mass.	Pape, Frederick W.....Germany.
Crane, Frank S.....N. J.	Parker, Virgil F.....N. Y.
Degenhardt, Martin.....N. Y. City.	Queen, Louis A.....N. J.
Dodge, Arthur.....Conn.	Rivinius, Julius W.....N. Y. City.
Dunges, John.....Germany.	Roberts, Livingston J.....N. Y. City.
Eagleton, Charles H.....N. Y.	Roberts, John.....England.
Fitzpatrick, Thos. A.....N. Y. City.	Shenstone, Joseph N.....N. Y.
Fonda, Edw. S., M. D...N. Y. City.	Simon, Samuel.....Mass.
Gibbs, Frederick W.....Conn.	Smith, Karl C.....N. Y.
Henriquez, Joseph M.....W. I.	Smith, Charles R.....N. J.
Hull, Henry J.....N. Y. City.	Swift, Arthur L.....N. J.
Herrera, Ignacia V.....Cuba.	Weber, Johan A. Theo.....Finland.
Harnung, George J.....N. J.	Wyant, Wm. M.....N. Y.
Howard, Chas. W.....N. Y.	Villalon, Louis M.....Porto Rico.

THE ODONTOLOGICAL DINNER.

A full stenographic report of everything said at the annual dinner of the New York Odontological Society was made at the time, and it will be published in the *Odontographic Journal* for April. The proceedings were very interesting, and some of the speeches were capital.

UNIVERSITY OF MARYLAND, DENTAL DEPARTMENT.

The annual commencement of 1885, in connection with the seventy-eighth annual session, was held at the Academy of Music, Baltimore,

Tuesday, March 17th. Prayer by Rev. Culbreith B. Perry. Reading of mandamus and announcement of graduates by the dean, Professor F. J Gorgas. Conferring of degrees and award of prizes by Hon. S. Teackle Wallis, LL. D., Provost of the University. Address by Prof. R. Dorsey Coale, Ph. D.

Graduates in dental surgery, thirty-six in number:

Bailey, Madison A.....S. C.	Josselyn, Eli E., M. D .....N. B.
Beadles, E. Payson.....Va.	Kloeber, John S.....Va.
Bradford, Henry Clinton.....Va.	Matthews, Augustus.....N. C.
Brown, Claude D.....Va.	McQuown, Robert T.....Va.
Carlisle, John P.....S. C.	McQuown, William P.....Va.
Carter, Joseph W.....Mo.	Norwood, Wm. McIntosh.....S. C.
Comegys, Thomas M.....Tenn.	Parker, Will W.....Minn.
Cooke, Frank J.....Tex.	Pitts, Henry Clay.....N. C.
Dorset, Willie Edward.....Va.	Perkins, Capers D.....Ga.
Fournier, Joseph, Jr.....N. Y.	Ranson, James M., Jr.....W. Va.
Groshans, Ferdinand.....Md.	Rutledge, Brooks.....S. C.
Hebbel, Charles W.....Md.	Schaer, Charles T.....Md.
Helm, John W.....Md.	Trapp, Wm. Sherman.....Pa.
Hill, Charles E.....Australia.	Twitchell, Fred. A.....Minn.
Houghland, Ulysses Sylvester....Ind.	Wangemann, Albert.....Germany.
Howland, Clarence Henry.....D. C.	Welch, Floyd J.....Va.
Howlett, A. Hersey.....Pa.	Wegge, William F.....Wis.
Hundley, Peyton.....Va.	Wood, Frank Le Roy.....Maine.

Number of matriculates for session of 1884–85, seventy-four.

KANSAS STATE DENTAL LAW.

Spread the news throughout the land that Kansas keeps step with the march of progress. On February 25th its Legislature enacted a law regulating the practice of dentistry within its borders. In its action it is identical with the law now in force in Missouri, allowing none but graduates of reputable dental schools to engage in the practice of dentistry in the State in the future, and a knowledge of the men most active in its enactment warrants us in saying that it will be rigidly enforced. Dr. L. C. Wasson, of Ottawa, Kansas, who is a member of the State Senate, introduced the bill, and to his ability and influence is largely due its successful passage, and it will always remain as a fitting monument to his love and regard for the dignity and character of his chosen calling. May he live long to enjoy its fruits.

The next annual meeting of the Kansas State Dental Society will be held at Topeka, Kansas, commencing Tuesday, May 5, 1885, and the indications now point to the largest gathering in the history of the society.

DENTOS.

THE MEDICAL CONGRESS OF 1887.

The organization of the section of Dental and Oral Surgery in the International Medical Congress, that will meet in Washington in 1887, has been completed by the appointment of the following gentlemen as officers:

President—J. Taft, M. D., D. D. S., Cincinnati, Ohio.

Vice-Presidents—W. W. Allport, M. D., D. D. S., Chicago, Ills.; W. H. Dwinelle, M. D., D. D. S., New York City; J. L. Williams, M. D., D. D. S, Boston, Mass.

Secretaries—E. A. Bogue, M. D., D. D. S., New York City; G. H. Cushing, D. D. S., Chicago, Ills.

Members of Council—W. C. Barrett, M. D., D. D. S., Buffalo, N. Y.; Thos. Fillebrown, M. D., D. M. D., Portland, Me.; F. J. S. Gorgas, M. D., D. D. S., Baltimore, Md.; Ed. Maynard, M. D., Washington, D. C.; J. H. McKellops, D. D. S., St. Louis, Mo.; W. H. Morgan, M. D., D. D. S., Nashville, Tenn.; C. N. Pierce, D. D. S., Philadelphia, Pa.; L. D. Shepard, D. M. D., Boston, Mass.; James Truman, D. D. S., Philadelphia, Pa.; J. W. White, M. D., D. D. S., Philadelphia, Pa.

SECOND DISTRICT DENTAL SOCIETY.

At the annual meeting of the Second District Dental Society, held on Monday, March 9th, at the office of Dr. L. G. Wilder, 54 Fort Greene Place, Brooklyn, the following officers were elected:

President—E. Parmly Brown, Flushing, L. I.

Vice-President—C. W. Harreys, Brooklyn, N. Y.

Recording Secretary—A. N. Roussel, 879 Gates Ave., Brooklyn.

Corresponding Secretary—F. T. Van Woerl, Brooklyn, N. Y.

Treasurer—L. G. Wilder, Brooklyn, N. Y.

Librarian—D. S. Skinner, Brooklyn, N. Y.

A. N. ROUSSEL, Rec. Sec.

FIFTH DISTRICT DENTAL SOCIETY.

The Fifth District Dental Society of the State of New York will hold its seventeenth annual meeting at Utica, Tuesday and Wednesday, April 7 and 8, 1885. The session will be called to order at two P. M., at the Butterfield House.

DENTAL LEGISLATION IN DAKOTA.

The legislative assembly of Dakota has passed an admirable dental law. Profiting by the mistakes of some of the older States the dentists of that Territory drafted a law that seems as near perfect as they could hope for. One excellent provision is that all registrations shall be made under oath. The diplomas of colleges, also, require the indorsement of the examining board, thus preventing practice under a diploma illegally obtained, and allowing the board to throw out those of any fraudulent, or disreputable, or incompetent college.

SEVENTH DISTRICT DENTAL SOCIETY.

The seventeenth annual convention of the Seventh District Dental Society of the State of New York will be held in Rochester, on Tuesday and Wednesday, April 28 and 29, 1885. Members of the profession are invited to be present.

CHAS. T. HOWARD, Recording Secretary,
224 E. Main St., Rochester, N. Y.

NEBRASKA STATE DENTAL SOCIETY.

The ninth annual meeting of the Nebraska State Dental Society will meet at Lincoln, Tuesday, May 12, 1885, and continue in session three days.

W. F. ROSEMAN, Secretary,
Fremont, Nebraska.

EIGHTH DISTRICT DENTAL SOCIETY.

The seventeenth annual meeting of the Eighth District Dental Society of the State of New York will be held in the City of Buffalo, commencing on Tuesday, April 21st, 1885, and will continue two days.

THE INTERNATIONAL TOOTH CROWN COMPANY.

Too late for insertion in this number, we have received a communication in answer to the article of Dr. Dwinelle, in the number for October, 1884. It shall have attention next month.

(51.) Will tin or amalgam placed at the cervical wall of proximal cavities of bicuspids and molars, preserve those margins better than gold, provided equal care and skill is used in each case? And if so, why? A. B. M.

(52.) Will some one kindly give the formula for making "Acid Sulph. Arom." in the next I. P., and greatly oblige, R. C. M.

Answers.

R. C. M. (52.)

R. Acid Sulph. (pure), oz. vj.
Zinzib. Rad. (Jamaica), oz. i.
Cinnam. Cort. oz. iss.
Sp. Vin. Rec., q. s.

Add the acid gradually to a pint of alcohol and allow it to cool. Mix together the ginger and cinnamon, reduced to a coarse powder, and place them in a percolator. Pour alcohol gradually upon them until a pint of tincture is obtained, and mix the diluted acid with this tincture. C. E. F.

B. (49.) By the term "knuckling," it is intended to convey the close approximation of adjoining teeth or fillings, at the small point of contact just above the inter-dental portion of the festoon of gum surrounding the necks of the teeth. The simplest way to illustrate this form, being nature's best, is to place the backs of the hands together on a table, with the knuckles on the table about one inch apart, the gum being supposed to occupy the open space from the table to the point of union of the backs of the hands near the wrists. These forms in nature resist decay the best, and keep clean and comfortable, both in nature and art. E. Parmly Brown.

B. (49.) The term "knuckling" signifies the complete and perfect restoration of the approximal side of a tooth, with any filling material, to its original type. When this is done, there is a point of contact (the knuckle) between the teeth, which prevents the crowding of food down on the gum, and also helps to strengthen the dental arch as each tooth is leaning against its neighbor.
A. N. Roussel.

Student. (41.) Take waste amalgam, old fillings, etc., put them into a crucible without flux; increase the temperature to a *red* heat, and continue the same about ten minutes; pour the alloy upon a flat surface. This process reduces the weight a little more than one-half, from loss of mercury and other volatile metals. Weigh the ingot thus obtained, and to eighty parts of the alloy add seventeen parts fine silver and three parts fine gold. The silver may be readily obtained of a silver-plater. For convenience, both silver and gold should be rolled into thin plate, and be cut into strips. Select a crucible of liberal size for the quantity to be melted, in which fuse borax so that the molten salt will fill the crucible at least one-third full. Add piece by piece of the broken ingot till all is fused, then add the silver strips, which will immediately disappear, and at last the gold; this too will as quickly be melted, no greater heat being required than is necessary to render the flux fluid. Stir the alloy well with a pipe stem, or a clean iron wire, and pour into any shallow mould which will give form to the alloy most convenient for cutting. Although this alloy must be of unknown quantities, practical experiments prove it to be of a superior quality, of good color, and quick setting. Full instructions for making various grades of amalgam, its adaptation to conditions, etc., may be found in a work on "Plastics and Plastic Fillings," by J. Foster Flagg, sold by the S. S. White Dental Manufacturing Co. S. B. P.

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In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

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I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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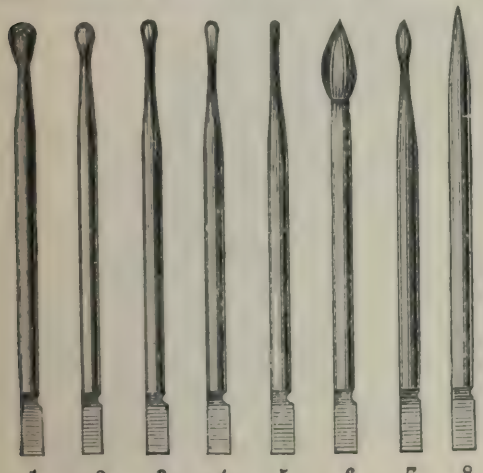
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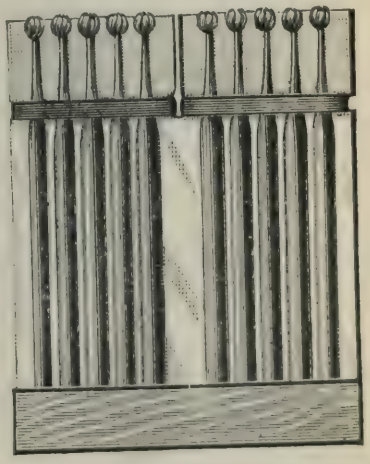


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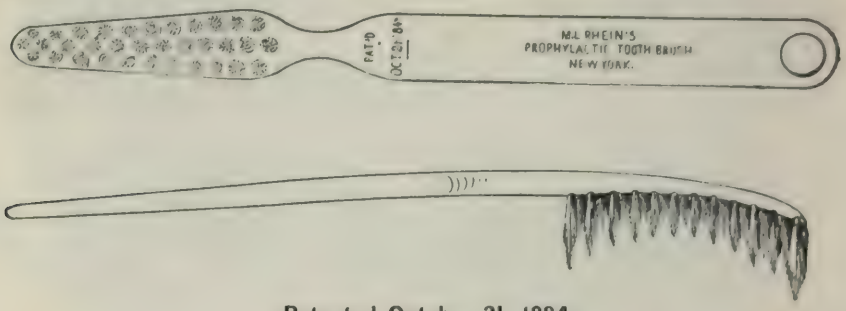
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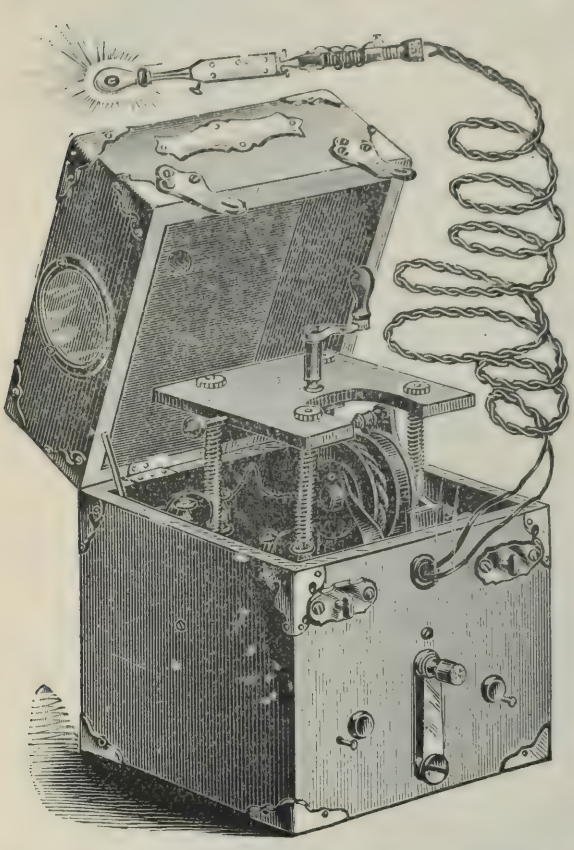
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VOL. VI. MAY, 1885. No. 5.

Original Communications.

BIOLOGICAL STUDIES ON THE FUNGI OF THE HUMAN MOUTH.*

BY PROF. DR. W. D. MILLER, BERLIN.

In order to be able to determine upon the proper course to be taken in the attempt to remove or check the progress of any disease, it is necessary that our ideas of the cause and course of that affection be established upon the most certain, exact and scientific data which we are capable of attaining. Unfortunately for the dental profession, the attempt to furnish a scientific solution of the problems of dental caries has, until recently, been confined to a very few, and even now a majority of the investigators in dental pathology are content to restrict their observations to the clinical aspect of the question, a course which could never produce a satisfactory solution; while others even openly advocate a speculative course, and do not hesitate to ascribe to every new factor discovered in nature, a role in the production of caries of the teeth.

Consequently we have had presented to us, in turn, worms, acids, inflammation, electricity, infusoria, bacteria, putrefaction, toxic

*German mycologists use the term 'Pilz' indiscriminately to designate either Schizomycetes, Blastomycetes, Hyphomycetes or Myxomycetes. When it is desirable to refer to any one of these groups in particular, they use the prefixes Spalt, Spross, Schimmel or Faden, and Schleim, giving Spaltpilz, Sprosspilz, Schimmel-or Fadenpilz and Schleimpilz. Following their example, I have in previous papers used the term fungus for all of the four groups of mycetes mentioned above, and shall also use the term in this paper, in which only Schizomycetes are treated of.

agents, etc., etc , as causes or conditions of *caries dentium*, some of these theories containing some truth and some a surprising amount of absurdity. In the last two or three years, however, a great advance has been made in the methods of study, and a number of important points have been firmly established.

1. The observation of Leber and Rottenstein that micro-organisms are constantly present in decaying dentine, has been confirmed. (Weil, Milles, Underwood, Miller.)

2. The softening of dentine in caries has been shown to be chemically identical with that produced by certain weak organic acids. (Miller, Jeserich, Bennefeld.)

3. It has been established that various organisms found in the human mouth, produce the decalcifying acid by first converting non-fermentable sugars into fermentable varieties, and secondly, by splitting fermentable sugars into lactic acid. (Miller, Hueppe.)

4. The same organisms have been found capable of dissolving decalcified dentine, while they have no apparent effect, even after two or three years, on sound dentine. (Miller.)

5. Caries of dentine, chemically and morphologically identical with natural caries, has been produced outside of the mouth. (Miller.)

6. It has been furthermore shown that certain of the organisms of the human mouth are capable of developing under exclusion of air, thus making it possible for them to propagate within the substance of the dentine. (Miller, Hueppe.)

I propose to describe, in this and the following article, a series of experiments made for the purpose of obtaining more definite information respecting the number and morphology of the fungi of the human mouth, and their physiology, as far as is necessary to an understanding of the part which they may perform in the production of caries of the human teeth.

At the meeting of the American Dental Association, at Saratoga, a number of tubes containing pure cultures of fungi were passed around; with regard to these a reporter remarked that "they were evidently beyond the information of the majority." It is not very flattering to American dentistry if its representative Association allows a question of so great importance to remain beyond its comprehension, nor is there any excuse for such a condition of things now, so widespread have the methods of pure culture become. I

rather incline to the opinion that the reporter misinterpreted the apathy of the members of the Society. I shall, at any rate, here describe in a few words the methods now universally employed in isolating any given fungus, and then, more in detail, give the means which I have used to ascertain the physiological characteristics of the different fungi when obtained in pure culture.

We will start with a solution densely impregnated with micro-organisms, and a number of tubes of culture gelatine, perfectly sterilized. The gelatine being melted, we add to the first tube one bead (on a loop of sterilized platinum wire) of the solution. This is called the *first dilution.* From this tube we add two or three beads to a second tube (*second dilution*), and from the second five or six beads to a third tube (*third dilution.*) The gelatine is then poured upon horizontally placed, sterilized, cold glass plates. It congeals in a few seconds, and the three plates are placed in a pile (on glass benches) in a moist cell. The plates are examined after twenty-four to thirty-six hours, under a magnification of one hundred diameters.

By this means the fungi are so separated that on the third plate there will generally not be more than two to ten; (on the second there may be one hundred or two hundred, while on the first, of course, there are very many more.) As each micro-organism develops, being fixed in the gelatine, we will have at that point a pure culture of that particular kind. At another point we obtain a colony of a second kind, and so on. In general, colonies of different fungi may be distinguished with the greatest ease, by their microscopic appearance. With a sterilized platinum wire, bent at right angles at the end, we now pick up a number of the colonies of each kind, under the microscope (one hundred diameters), and transfer them directly to tubes of culture gelatine, only one colony to each tube. We have then (except in case of a possible accidental air-infection) pure cultures. Some experience is necessary to enable one to pick up the colonies under the microscope. Beginners should not attempt it with plates where more than one colony is in the field at once.

The method described in this journal (page 340, 1884), may also sometimes be used to great advantage. For fungi which do not grow on gelatine, Agar-Agar, or congealed blood serum, should be used. The former, one to one and a half per cent, has a higher

melting point than gelatine, ten per cent, and remains solid at the temperature of the human blood. When it is used for plate-cultures, it must be melted in hot water, and the infection made at a temperature of 40° to 42° C. Below this temperature it becomes solid, and cannot be poured; above it the germs would be liable to suffer. In other respects the Agar-Agar media are treated as the gelatine. Congealed blood serum cannot, of course, be poured upon plates. It is prepared in test tubes so inclined as to give the greatest possible surface, and a minimum quantity of the substance containing the fungus or fungi spread over the surface. Having obtained a pure culture of any fungus, the points to be determined regarding it are the following:

1. Its morphology; (bacillus, spirillum, micrococcus.)
2. Is it moveable? does it produce spores?
3. What are its growth-characteristics on various media, microscopically and to the naked eye?
4. What are its relations to oxygen?
5. Does it produce fermentation? If so, what fermentation, under what conditions, and with or without development of gas?
6. Does it cause putrefaction?
7. Does it have a diastatic, inverting, or peptonizing action?
8. Has it a pathogenic character?
9. Does it produce coloring matter?
10. What is its susceptibility to the action of the various antiseptics?

The first and second of these questions are, of course, determined by the microscope alone; the third, by the microscope and the naked eye combined; the fourth by the methods described in this journal, page 62, 1884, or by placing a thin strip of mica upon one half of the culture-plate before the gelatine solidifies; the mica then adapts itself closely to the surface of the gelatine, excluding the air, and if the fungus requires oxygen for its development the colonies beneath the mica either will not develop at all, or they will be very small compared with those on the other half of the plate, their growth ceasing as soon as the oxygen in the gelatine has been consumed. (Koch.) The fifth point is answered by infecting fermentable solutions with the fungus in question, placing it under various conditions of temperature, etc., and determining the products of fermentation (if any); the sixth by analogous

methods; the seventh question is determined by the action of the fungi upon starch, cane sugar, and albumen, (boiled white of egg); the eighth by experiments on animals; the ninth by the appearance or non-appearance of color in the vegetation itself, or in the surrounding medium; the tenth by experiments that will readily suggest themselves.

Other points to be investigated will be mentioned further on. Boiled potato is a medium of great value in the determination of Schizomycetes. No medium, however, requires greater care in preparation and after treatment than this, in order to obtain satisfactory results. Any sound potato *which does not become mealy or crack open on boiling*, will do for the purpose; it is first thoroughly washed and brushed, and all defective spots and deep eyes being removed, it is placed for one hour in a corrosive sublimate solution, five to one thousand, then in the steam sterilizer for one-half to one hour. In the mean time the moist cell is sterilized, and the bottom lined with filter paper wet with sublimate solution, five to one thousand. The potatoes are, while hot, removed from the sterilizer with sterilized forceps, cut into halves with a cold sterilized knife, and placed directly upon the sublimate paper (the cut surface up), and the cell closed. Potato sections prepared in this way should remain unchanged indefinitely. When the potato has become cool, the cover of the cell is carefully removed, and the fungus which is to be cultivated is spread upon a space about as large as a dime, in the centre of the section. Fungi which, morphologically as well as in their reaction upon gelatine, Agar-Agar and blood serum, show no appreciable differences, may sometimes be easily distinguished by aid of the potato culture. The potato can seldom be used to separate fungi, (*i. e.* to prepare pure culture). It is chiefly used as a reagent in distinguishing between fungi already in pure culture. For example, all comma bacilli yet discovered grow on potato, except the one found by Dencke in old cheese, which does not develop at all on potato, and is thereby at once distinguished as an entirely different fungus.

Eggs may often be used to great advantage. They are prepared as follows. The *fresh* egg is placed in sublimate, five to one thousand, for ten minutes, then in the steam sterilizer for one hour. The cell for eggs is prepared as for potatoes, except that a sterilized glass plate, resting on a glass bench, is placed in the

bottom to support the egg sections. As the eggs must be handled with the fingers, the hands must be thoroughly washed, then soaked in sublimate, five to one thousand, and then washed again in *alcohol absolutus*, to remove the sublimate. The eggs are shelled while still hot, and cut into two, three, or four sections. They are vaccinated in points upon the white; the yellow is not so well adapted to culture experiments, since it cannot be cut with a smooth surface.

I always keep on hand sections of potato and egg, also tubes of gelatine, Agar-Agar, and blood serum, and when in my practice particularly good material, or anything uncommon presents itself, a portion of it is at once transferred to these different culture media, so that it is pretty sure to develop in one of them, at least. For example, I have several times met with a fungus in the human mouth which produces a yellowish coloring matter, and which absolutely refuses to grow on anything which I have tried, except potato.

(TO BE CONTINUED.)

EPITHELIOMA.

BY DR. A. M. ROSS, CHICOPEE, MASS.

A gentleman of about forty-five years of age recently called my attention to a growth in the mucous membrane of his cheek, which appeared to be about the size of half a large pea. The body of it was smooth, with the margins well defined. The color was considerably darker than the surrounding tissues, except at the apex, where it was a dirty yellow. When his mouth was closed and his features were in repose, the tumor was opposite an opening in the lower dental arch, caused by the loss of a first bicuspid. The cuspid and second bicuspid on either side of this space were considerably worn by mastication. The teeth being of a very dense structure, the angles caused by mechanical abrasion were very sharp. Fillings on the distal surface of the cuspid and the mesial surface of the second bicuspid were broken down by secondary decay, and these surfaces were rough. The patient was very nervous and apprehensive of cancer. He had for some time known of the existence of this growth, but as it gave no particular annoyance for a

considerable period after its discovery, he had thought nothing further about it than that it would probably disappear as strangely as it had appeared, if it were not disturbed. But for a month or so previous to my seeing him, he had frequently bitten it while at the table, the result being increased size and tenderness. Careful inquiry concerning his family history gave no evidence of cancerous cachexia. He did not use tobacco in any form.

I first removed the causes of irritation presented by the teeth, by reducing angles to curves and refilling the cavities, the roughness of all the teeth being carefully removed. Then the case was allowed to rest for a few days, for the purpose of studying the effect of this treatment, but not in the expectation that a cure would result from it. The next time I saw it I was gratified to find that it had been subjected to less irritation, the color was better, it was less turgid, and it seemed to be a little reduced in size. It was a very simple matter to remove a tumor located as this one was, and a sufficient amount of healthy tissue was taken up in the removal. The healing of the surface required no attention during the process, except once. The granulations at one point required one application of nitrate of silver. The tumor was immediately placed in Muller's fluid, and subsequently in ninety-five per cent. alcohol, for hardening. This was accomplished in ten days. Sections were then cut, properly stained, and after a suitable immersion in glycerine were mounted in dilute glycerine. (Glycerine seventy-five per cent, distilled water twenty-five per cent.)

It is possible that the interest which centers in the study of disordered epithelium is owing to the fact that very little is known of the many causes of its disease. Certain effects are carefully studied, and from these certain deductions can be safely drawn. We are able to distinguish between a self-explaining tumor and one that apparently has no explanation. The terms benign, dubious, and malignant, have significance, and they are applied by surgeons with intelligence. A careful survey of the subject of epithelioma reveals at once the fact that our knowledge is quite limited. To illustrate: Why should one form of epithelioma in an individual case be properly considered benign, and another form somewhere else in the same subject be as safely considered malignant? Or, to put it another way, if one form of the disease may degenerate to a malignant type, why are not all forms, or any form of epithelioma in a

person, whether of a cancerous cachexia or not, likely to degenerate, to soften, to ulcerate, and finally to lead to a fatal result? Will some one explain why one corn on the toe is soft, and another on the same toe hard? The answer might be, that in the hard corn the epidermal cells are more closely packed together in flat layers. In the soft corn the cells are more distinct; they assume the papillary arrangement, and there is more moisture than in the hard corn. But such is not strictly a correct reply, for it is too superficial. The *why* lies deeper. These are the questions of ignorance. In a strictly correct classification a corn or a wart is an epithelioma, as much as a so-called smoker's cancer. The glands of the axilla and groin may swell from very tender warts or corns, but is there a case on record of a malignant ulcer following such effects?

My patient had a hypertrophy of the mucous membrane of his cheek, and he was scared nearly to death—perhaps not without reason—but he was not in the least worried about a wart on his finger, nor a very tender corn on his toe. The only difference was one of locality, and the fact that the derma and cellular fascia beneath the epithelium of the inner cheek is more vascular than it is immediately under the outer epithelium of the body.

Prof. H. H. Smith on surgery says: "The greater vascularity of mucous membrane modifies the formation of epithelioma in this tissue, the induration, or scaly wart, degenerating and ulcerating, and creating, through inflammatory action, more or less induration of the parts immediately adjacent, giving an appearance of depth to the ulcer, which is really quite superficial." But why is it that certain hyper-activity in epithelium will, from some discerned cause, advance into the deeper tissues, unless checked, and develop a malignant form that, by neglect, becomes difficult and occasionally impossible to cure? The difference between a simple hypertrophy and psoriasis is stated by some authorities as consisting in the simple fact that there is no congestive action in a simple hypertrophy, but that in psoriasis there is congestion, heat, the increased action producing squamæ, or scales. The term hypertrophy means excessive nutrition, and whether it be simple or compound, congestion is more or less present and active, but it is not necessarily an inflammation. Now, as to the significance of the terms benign, malignant, etc., applied to morbid growths. Heitzmann says that the term benign is not strictly correct, because a morbid condition is

never strictly benign. "Tumors of a so-called benign character may produce distressing and even fatal results by pressure, tension, atrophy of organs, or disturbance of their function." He further says that "The examination of a tumor with the microscope is of the utmost importance, as in many instances it is only by an examination of this kind that a correct diagnosis of the nature of a tumor can be obtained." Again he says: "There are but very few points worthy of consideration as to the nature of a tumor. The more of a basis substance present, the smaller therefore the amount of free bioplasson bodies, the surer it is that the new growth is of a benign nature. On the contrary, the smaller the amount of basis substance, the larger the relative number of free bioplasson bodies, the more certainly does the tumor belong to a malignant type." The distinctions are here drawn with clearness, and I may digress for a moment to say that I think this authority is as clear in fact as in statement, and that the full value of his assertions and claims in his work on the "Morphology of the Animal Body in Health and Disease," will be better appreciated in the future than they now are, and that the spirit of uncharitableness shown him and his views will one day be regretted, to say nothing of mortification at being on record as on the wrong side of *truth.*

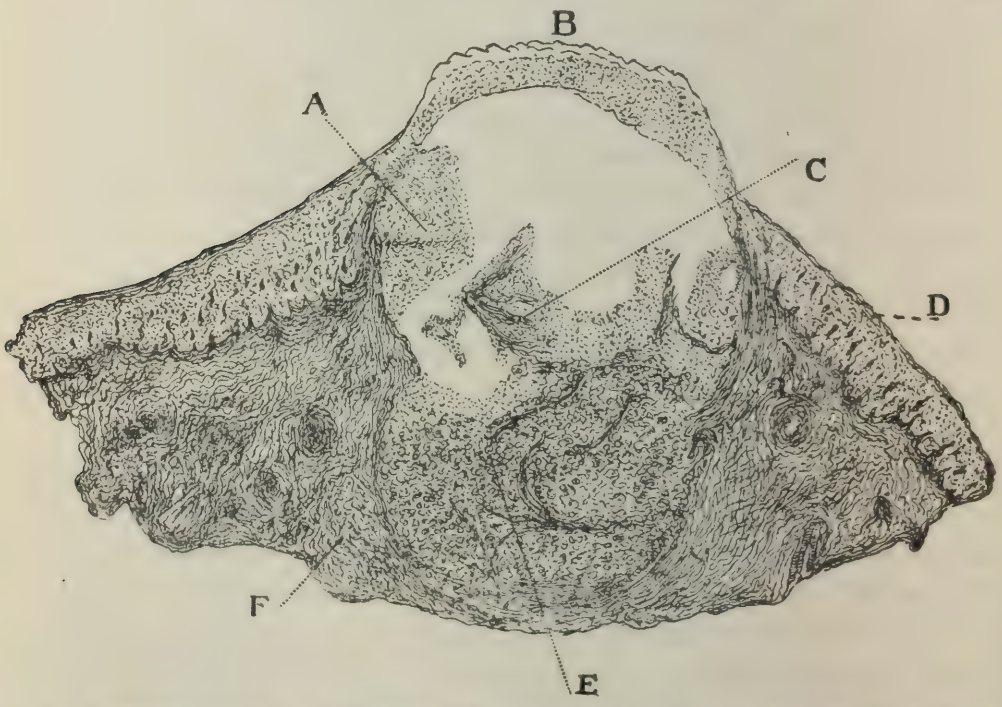
The best process of hardening small tumors containing epithelia is by freezing. The freshly removed tumor is carried directly to the microtome, on the drum of which there is placed a thick solution of gum arabic, and in this the specimen is placed and frozen. The sections are quickly carried to the slide, on which they may be stained and subsequently permanently mounted, if desired. But this involves continuous rapid work from the instant of removal from the mouth, and I adopted the process usually followed, and which is referred to in the first part of this paper. In the cutting, the dead epithelia at the apex were lost. Enough, however, in most of the sections was left to show the character of the whole, and the reason of the peculiar color of the apex when viewed *in situ.** The interesting features of this tumor lie beneath these areas of free epithelia, where the changes which occur in the inflammatory pro-

* The drawing, which was done under an amplification of 18 diameters, was made for this paper simply to convey an idea of the general form of the tumor, and fine details would be impossible with such a low power. The engraver's work is, however, very unsatisfactory. The size of the drawing had to be reduced, and instead of correspondingly reducing the details, they are exaggerated.

cess consist, first, in a dissolution or liquefaction of the basis-substance, and secondly, in an increased production of living matter of its own kind. This growth had not passed the stage of tissue formation, and in the centre of the involved territory will be seen a large number of blood vessels; but had it passed to the suppurative stage, the danger of degeneracy would lie in the character of new tissue developed from the parent tissue.

Dr. E. W. Hoeber, of New York, in an article upon Epithelioma in Heitzmann's Morphology, etc., says: "We know that in inflammation the tissue returns to a juvenile condition, and breaks down into elements from which it had sprung. Elements produce their own kind only, when in the embryonal condition. All observers, notwithstanding our limited knowledge as to the cause of the growth of tumors, are agreed that the parent tissue in which a primary new formation originates also returns to a juvenile stage, or stage of indifference, in which it is capable of producing new elements; these, in further development, give rise to the characteristic tissue forms, which are mainly of two kinds: vascularized connective tis-

VERTICAL SECTION OF EPITHELIOMA.



A—Free epithelium. B—Cortical layer of apex. C—Blood vessels. D—Epithelium. E—Juvenile tissue. F—Inflammatory region.

sue, and a vascular epithelium." In the drawing accompanying this paper territories of "free" epithelia and of vascularized epithelia are faithfully shown. Beneath these is shown the tissue in the juvenile stage, or stage of "indifference." This tumor was of slow growth, and a careful examination with high power objectives demonstrates the fact that the epithelia are small. If we remember what Heitzmann has said about certain clinical and microscopical features that constitute a safe guide in distinguishing between the benign and malignant forms of tumors, I think we shall be able, in view of the history and microscopical appearance of this tumor, to decide that it had not yet assumed the malignant form, but that it probably would have done so very soon. Considering its locality, and the certainty of its involving the lymphatics of the region, and very soon after that the parotid gland of that side, the patient is to be congratulated upon what now appears to be a complete cure.

It is not a very long time since an Irish woman, of about sixty years of age, wished me to examine a very loose and somewhat decayed inferior cuspid. The decay was upon the disto-lingual aspect, which was discovered after removal of the tooth, and the subsequent removal of a great quantity of calculi. The tooth was *exceedingly dead*, but all this was of minor importance compared to what I have yet to detail. I noticed an enlargement of the sub-maxillary gland before operating. The swelling extended well down to the clavicle, and the surface of the skin had a peculiar expression, which I attributed to some external poultice, a plan of treatment adopted by the ignorant for relief of toothache. I also noticed a peculiar thickness of speech, that I at first thought was wholly owing to a little of the ardent, and I was excusable in not being very particular in the first examination, because I never before or since stood over such a horrible stench as that which she exhaled with every breath. Midway between this tooth and the point of attachment of the genio-hyo-glossus muscle to the tongue, there was a cone-shaped, dirty, yellow mass, the surface papillary and suppurating at one side. Infiltration had evidently begun. The sub-maxillary, and to some extent the sub-lingual glands, were involved, and the general appearance indicated that exhaustion had already begun. The patient declared that the "lump" under her tongue had been there sixteen years. Possibly it had been there fully as long, but more probably it had not. She stated

that her breath had been bad for over a year. There was every indication of a fatal termination in this case, within a few months. The tooth had been a cause of irritation to the tongue at one time, but for years she had not used that side of her mouth in eating, and the accumulated calculi had filled the cavity and covered the crowns of it and the adjoining teeth. But a morbid development had long before commenced. My first thought was Ranula, when I discovered trouble under the tongue after finding such masses of calculi on the teeth, but Wharton's duct was free, and the growth at one side was soon diagnosed as epithelioma.

A thorough rinsing of the mouth with permanganate of potash solution, prepared the patient's mouth for approach and examination. The ulcer was then touched with a solution of chloride of zinc, twenty grains to the ounce of water. After a suitable wash was given the woman, she was sent to her physician, who has since employed constitutional remedies with very indifferent results.

I mention this last case simply to contrast it with the first, and at the same time to show the necessity of early radical treatment of what at first often seems to be a very unimportant morbid condition.

In conclusion, what can be said of the causes of tissual changes from hyper-activities in the mucous membrane, when such an authority as the late Louis Elsberg modestly admitted his ignorance of the subject of inflammation of this tissue?

"STRAINING AT A GNAT!"

BY DR. CHAS. E. FRANCIS, NEW YORK.

A paper was recently read before the Central Illinois Dental Society, and published in the March number of the *Ohio State Journal*, on "The Poisonous Effects of Amalgam Fillings."

The author assumes that "the poisonous effects are due to evaporation of mercury from the fillings, which is going on at all times under ordinary temperatures." Also, that "mercurial poisoning manifests itself variously—sometimes immediately upon inserting the filling, and again, not for years." "The symptoms in the first instance," he observes, "are characterized by a metallic taste and

peculiar sensation, similar to that experienced in holding both poles of a galvanic battery ; and particularly is this the case where the amalgam is in close contact with other fillings, or when touched with a silver fork." And further, that similar results are also produced in partaking of "some kinds of food." According to the views of the essayist, "a shock is experienced," and this "shock" is manifestly a liliputian shower of mercurial poison !

In proof of this "theory," a case is cited where, in Philadelphia, some tempting but treacherous "raw oysters" were incautiously introduced within the buccal cavity of a too confiding individual, wherein was "a large amalgam filling which had been recently inserted, producing a shock followed by pain so intense that the filling had to be removed."

Mercy on us ! What *does* such sort of testimony amount to ? Similar "shocks" and "pains" are of frequent occurrence where no amalgam is present. With tin and gold fillings such experiences have been related and *re*-related over and over again, for scores of years back, as every dentist must know. A "raw oyster" coming in contact with one of our own incisors at a commencement supper in this same city of "Brotherly-love," gave a shock that produced unutterable agony; and that filling also "had to be removed." In this case, however, the tooth contained a "recently inserted" *gold* filling, and there was no amalgam whatever in the mouth. Perhaps the luscious bivalves of the Delaware Bay region partake largely of the nature of *electric eels*, and resent with a stinging farewell rebuke the indignity of being served in a nude and vivisected condition on the half-shell.

We have also on various occasions experienced thermal shocks in other teeth filled with the "precious metal," when eating fruits or taking into the mouth food or drink of unsuitable temperature, and have felt galvanic shocks when silver, tin or other metals have come in contact with the gold. Why then should not similar shocks occur where *amalgam* is employed ?

The average amalgam filling is larger than that of gold. The larger the filling, the greater the danger to be apprehended from sudden thermal changes—the prime cause of pulp irritation and pulpitis. Large gold or tin foil fillings are quite as likely to convey thermal or galvanic shocks to pulps nearly exposed as fillings of amalgam ; and such results have proved quite too common in

the practice of those who utterly ignore plastic stoppings. As a rule, it is unsafe to allow metal fillings of any sort to be placed in close proximity with living pulps, excepting, perhaps, some of the metallic oxides.

We are further informed that "the most common pathological condition as a result of mercurial poisoning is *ptyalism.*" The normal flow of saliva is given as "three pounds per twenty-four hours," and if the flow exceeds this amount we have an "abnormal condition." Our Chicago friend also states that, among his patients, those having several amalgam fillings, or both gold and amalgam fillings, "are almost always afflicted with ptyalism!"

It is reasonable to presume that human nature is pretty much the same in the different sections of our country, especially in *functional* peculiarities, yet we occasionally hear strange and wonderful stories concerning Chicago folks—especially the "girls"—and this may be among their peculiarities. To state *precisely* the normal flow of saliva hereabouts, would be preposterous. We have *all* conditions of saliva flowing "in these parts," and crackers are often eaten for a wager!

While some mouths might remind one of a summer drought, others appear more like an autumnal deluge. Fillings of amalgam, with or without the gold, seem to make precious little difference in regulating this flow, and the closest observations of years fail to reveal such marked influences. And in regard to the conditions of the gums, amalgam has just about as little to do in this respect. The worst appearing cases of diseased gums that have come within the scope of our observation, have been in mouths where no amalgam was found. *Imagination* will conjure up many strange notions, and strange notions are wonderfully prevalent in these days. As yet, neither galvanic nor thermal shocks have been universally labelled "poison," and even though it is possible that constant galvanic action may favor decalcification of enamel rods, its influence on the general system has not been considered *baneful.* Galvanic doctors, galvanic combs, brushes, belts, bracelets, rings, plasters, baths, etc., are advertised as "*aids* to health," hence we observe that imagination runs blindly in either direction.

In considering the decrease in weight of an amalgam filling by the evaporation of mercury, which (it is stated) is going on

little by little for years, we think it requires the biggest sort of fancied conjecture to perceive any marked effect exhibited on the general health, and it is a question of very grave doubt if any such evaporation takes place, or any perceptible diminution in a filling can be demonstrated. So far as *experiments* are concerned, to offset this "gaseous" theory, we can refer to experiments of a most elaborate nature made some years ago by Dr. E. A. Bogue, of New York, the late Prof. Hitchcock, of Boston, and others, who, sparing neither time, labor nor expense, for many months devoted themselves to the task of experimenting with amalgam in order to ascertain if any perceptible loss could take place in stoppings of this material when inserted in the teeth. The fact was clearly demonstrated, that the degree of heat requisite to produce mercurial vapor could not possibly be tolerated in the mouth of a living individual; also, that no solvent of amalgam pervades the precincts of the oral cavity.

Reports of these experiments were published in the *Dental Cosmos*, as transactions of the *N. Y. Odontological Society* at its December session for 1874.

Some individuals, overstocked with effeminate credulity, suffer constant fear, lest in some mysterious manner they may get poisoned. With them, every real or fancied ailment is attributed to either "malaria" or "mercury." These two formidable "bugbears" are brought out in turn, and each covers heaps of ignorance. The probabilities are that not once in ten times are they the *real* cause of mischief laid at their doors.

Where peridentitis or alveolar abscess proceeds from the root of a tooth in which there is an amalgam filling, it is too frequently diagnosed "mercurial poisoning." When, however, the same conditions appear where the stopping is of gold, the trouble is dignified by the term "neuralgia." Either diagnosis is, of course, equally senseless.

A New York physician of the Hahnemann type, one who boasts of a large practice, once informed us that at an early period of his life a "*villainous* country doctor" gave him a dose of calomel, and as a result his teeth had been "full of mercury ever since." A careful inspection of the mouth gave no evidence of mercurial mischief. A pulpless superior molar, containing a large gold filling, had at times given him slight annoyance, but all the other

teeth and gums were in a remarkably healthy condition. The calomel notion was exceedingly "vapory."

Another physician of the same school, in his vain endeavors to benefit a juvenile patient by administering ineffective "high-dilution" agents, declared that the "potency" of his "*remedies*" was counteracted by the presence of amalgam fillings in the child's teeth, and that the child was suffering from "mercurial poisoning." Subsequent examination by the dentist who had caused the "mischief," disclosed the fact that the child's teeth contained five stoppings of white gutta percha, and one of tin foil. All were in excellent condition, and no amalgam had ever been used. The feelings of the almost frantic mother were appeased, and the idiotic dispenser of pellets was advised to shoulder his own foolery, instead of falsely charging his ill-success to the operations of the dentist, whose reputation with this family he would have thus jeopardized.

A prominent and much esteemed dentist of New York treated and filled a devitalized superior molar with a stopping of oxy-chlor. of zinc. As the root-canals were closed too soon, peridentitis followed, and the cheek became much swollen. The dentist was sharply denounced for introducing a filling of a poisonous nature; "metallic poisoning" was the diagnosis of the leather-brained attendant, and another dentist was visited, who did his best to correct the erroneous impression, and to lull the storm of indignation which the operation and its effects had caused.

Cases similar to the above are by no means uncommon, and sensible dentists, instead of encouraging such ridiculous notions, should strive to dissipate them. Many individuals defer visits to the dentist, until driven to seek relief from relentless attacks of odontalgia. As a rule, such people desire to retain their teeth, and expect their dentist not only to relieve the immediate pain, but to so treat them that no after trouble is possible. Indeed, they presume that after such miserable offenders are once "fixed," they are better than ever before, and thoroughly insured from further annoyance for a lifetime! If the pain recurs, instead of blaming themselves for their unpardonable neglect, they are sure to make a scape-goat of the faithful dentist, who did all in his power to benefit them.

Our Chicago brother closed his paper with this trite paragraph:

"The profession and the public will welcome a filling which shall take the place of amalgam." To this we heartily respond, "amen."

We candidly confess, that although cases occur where amalgam is our last resort, we never employ it without a degree of reluctance, and for the simple reason that it tends to slightly bulge from cavity margins. This does not always happen, as is proved by the exhibit in many instances where it has remained perfect and unchanged for years, yet, where such a tendancy is *possible,* it lessens confidence. So far as injury to the system is concerned by "mercurial poisoning," we believe this to be *sheer nonsense.* As soon would we believe that all the fishes that sport in the pellucid waters of Lake Superior would become distressed should we cast therein a grain of calomel, or a spoonful of salt.

The majority of our ablest physicians consider mercury the "anchor of safety" in many cases which they are called upon to treat, and prescribe it day after day in doses of from two to fifteen grains, whereas, all the possible waste in an amalgam filling through a lifetime from "evaporation" would be so exceedingly minute that only the most exalted imagination could conceive it.

In accounting for many of the "ills that human flesh is heir to," the imagination sometimes gets terribly strained in gigantic efforts to "swallow a gnat," while "camels" are engorged with little ceremony. Wasting one's efforts over such vapory, visionary conjectures, is too much like grasping at the shadow of a shadow, or a futile searching for "the infinitesimal abstraction of ethereal inanity."

Verily—"a much ado about nothing!"

THE CONSTRUCTION OF SUERSEN'S OBTURATORS.

BY DR. TH. WEBER, HELSINGFORS, FINLAND.

(Continued from page 190, April number.)

The advantages of Suersen's hard rubber, or metal obturators over others, will be acknowledged by any impartial observer who comprehends the various methods of making them. From Dr. N. W. Kingsley's Oral Deformities, I quote the following:

"The sum of my experience with obturators is this: 1st. That of all obturators this (referring to an obturator constructed entirely

of metal) is the best form for a congenital fissure; but while the wearer is enabled to articulate perfectly with such an instrument, it is only after he has learned articulation with another apparatus." "2d. That a soft, elastic artificial velum is much better adapted to the acquirement of articulation than one of an unyielding, non-elastic substance, but when acquired an obturator may be substituted." "3d. That in very rare cases articulation may be acquired with an obturator only, but it is the result of the extra activity of the pharyngeal muscles, while with the elastic velum the levators of the palate contribute largely."

Although I have the greatest respect for the experience of Dr. N. W. Kingsley, yet I claim that with either a hard rubber or metallic instrument, constructed after Suersen's principles, a patient will learn to articulate just as readily as with an elastic velum. Dr. Kingsley, at the meeting of the First District Dental Society for February, 1885, remarked that no one could construct an obturator for a patient with a congenital cleft, in which articulation was noticeably improved during the first month's wear. At the March clinic of the same society, I exhibited a patient who had worn a Suersen's apparatus about three weeks, the bulb of which was made of gutta percha, and yet the improvement in articulation was quite perceptible when the patient read with the obturator. Why, then, should we make a patient wear an elastic velum, when articulation can be acquired with a more permanent instrument, which certainly is easier to construct than those of soft rubber, unless the practitioner has a large variety of the various shapes and sizes of metallic moulds from which one could be selected to fit almost any case?

Dr. Suersen, up to May, 1877, had supplied two hundred and forty-three patients with obturators, about two-thirds of whom were congenitally afflicted, and every one, so far as I know, has acquired articulation, and many even to the degree that detection of an imperfection in the vocal organs is impossible. One of these patients was a young man about fourteen years of age, when the obturator was inserted. He afterwards studied theology and became a minister.

A young lady patient, on account of her bad articulation before the insertion of the obturator, was absolutely unintelligible to strangers. She has now become a teacher of the German language, in England.

Another lady, who was engaged to be married, did not tell her intended husband of her infirmity until the day before the marriage, and the gentleman afterwards told Dr. Suersen that he had not, during the time of their engagement, noticed anything abnormal in her speech.

Another young lady, who had been married three years, assured Dr. Suersen that her husband had no knowledge of her wearing an obturator.

None of these patients had ever worn any other apparatus than Suersen's, made entirely of hard rubber, which demonstrates that perfect articulation may be acquired by their use, without the previous wearing of any other apparatus. The construction of these obturators, especially when made entirely of hard rubber, is quite simple, and the first part of it is identical with the making of an ordinary hard rubber plate. A perfect impression should be obtained with plaster of paris. In no instance is it necessary to take it further down than to the anterior border of the soft palate, nor in cases where the hard palate is perforated, higher up than the floor of the nasal cavities. To prevent the plaster from entering this cavity I pack it full of cotton, previously moistened with a solution of salt water. When this is done, the taking of the impression for an obturator is as simple as for an artificial upper plate.

(TO BE CONTINUED.)

THE ACTION OF SALICYLIC ACID UPON TEETH.

BY PROF. CHAS. MAYR, SPRINGFIELD, MASS.

To determine the exact action of salicylic acid upon teeth, on December 11, 1884, I put a freshly extracted tooth, in its natural condition of moisture and organic substance, weighing 1810 mgrs. (30.2 grains) into a solution, or rather mixture of 1230 mgrs. (25 grains) of salicylic acid, with 40 c. c. m. (1⅓ fl'd oz.) of water.

On December 26th, after having shaken up the mixture repeatedly, I took the tooth out. The enamel had not suffered very much, but the roots were softened to a considerable depth; from the surface of the enamel, which otherwise did not appear to be especially softened, I scraped off a powder weighing 5.7 mgrs. ($\frac{1}{10.5}$ grains), and containing 14 per cent. of organic substance. The tooth

weighed 1720 mgrs. ($26\frac{2}{3}$ grains); from this it would appear that it had lost about 90 mgrs. of lime salts ($1\frac{3}{4}$ grains). But this assumption would be erroneous. The whole liquid, water, salicylic acid and dissolved lime salts, was evaporated and ignited, and it showed that 160 mgrs ($2\frac{5}{16}$ grains) of lime salts had been removed, and, as it appears from the above figures, partly substituted by water. I had first carefully analyzed the salicylic acid, and found it free from all inorganic substances. The inorganic salts which the salicylic acid had removed from the tooth had the following composition:

Lime, (Ca. O.)	30.2	per cent.	
Magnesia, (Mg. O.)	6.5	"	
Phosphoric acid, (P_2 O_5)	38.5	"	with a trace of silica.
Carbonic acid, (C O_2)	24.8	"	
	100		

From these facts it is plain that, in 360 hours, a large excess of salicylic acid acting upon a tooth, removed 160 mgrs. ($2\frac{2}{3}$ grains) of lime salts. This gives the removal of about $\frac{1}{2}$ mgr. ($\frac{1}{120}$ grain) of lime salts in one hour, and the whole tooth would be decalcified in 150 days. If a preparation of salicylic acid is put into a tooth, the rate of decomposition of that tooth by the acid is probably much slower still. The tooth experimented on had a carious cavity. The chemical action of the salicylic acid upon the mass in the cavity was apparently the same as on the sound tooth. For a short application, therefore, the salicylic acid is not very dangerous, but like all small actions it will amount to a good deal in time. The tissue decalcified by salicylic acid is otherwise kept healthy, hence the damage is less than that from a decalcification by vinegar or sulphuric acid.

A COMMA BACILLUS IN THE HUMAN MOUTH.

DEMONSTRATED FEB. 16TH, AT THE *Verein Fuer Innere Medicin.*

BY PROF. DR. W. D. MILLER, BERLIN.

It is a well known fact that comma-shaped bacilli are constantly present in the human mouth, even in a state of perfect health. No particular importance was, however, attached to this fact, until these

bacilli were, by Prof. Lewis, asserted to be identical with Koch's comma bacilli of Cholera Asiatica. Since that time, very many bacteriologists have constantly endeavored to obtain the comma bacilli of the mouth, in pure culture. In the *Deutsche Medicinische Wochenschrift*, 1884, I described two different schizomycetes which I had isolated from the oral secretions, and which in certain cases appeared as distincly curved bacteria.

Not until within a few days, however, did I succeed in isolating from the mouth a true comma bacillus, and it was finally accomplished, in two cases, by the use of coagulated beef blood serum. The material from which the cultures were made was, in each case, found under the margin of inflamed gums, in unhealthy mouths. Morphologically this bacillus is very similar to the other well known comma bacillus, occurring as commata, either singly or in twos (Fig. 1), or in spirillum form. (Fig. 2.) In old cultures of gelatine, all the commata sometimes grow out into spirilli, giving a pure spirillum culture, cultivated on plates of beefwater-peptone-gelatine, at 20° C. They appear after twenty hours (in the second dilution), under a power of 100 diameters, as perfectly round, finely granular colonies, with a smooth border and brown color; in the same time the first dilution will be completely liquified. They liquify coagulated blood-serum with great energy, as do the other comma bacilli. On the surface of Agar-Agar they formed a yellowish coating, and convert the medium, superficially only, into a paste. They grow slowly on boiled potato. I have, consequently, not yet been able to establish any definite peculiarity of growth. The reactions of this bacillus are such as at once establish the fact that it is altogether a different organism from the comma bacillus of Koch. It possesses, on the other hand, many of the peculiarities of the Finkler-Prior bacillus. Whether it is identical with this organism, must be established by further experiment.

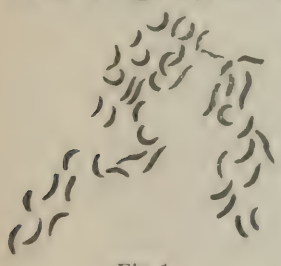


Fig 1.



Fig. 2.

It must be remarked that this organism is, in all probability, not the one which is constantly to be found in every mouth. This grows rapidly on ten per cent. gelatine, while the latter appears to be unable to grow at all on the same medium.

Dr. Klein, in his report on Cholera Asiatica (British Med. Journal, Feb. 7th, 1885), states that the comma bacilli of the human mouth have the same peculiarities of growth on gelatine with the comma bacilli of Koch, but not one of the many forms of micro-organisms, curved or otherwise, which I have obtained in pure culture from the human mouth, is for a moment to be mistaken for the bacillus of Koch. If Dr. Klein has really succeeded in proving by culture methods, that the common comma bacilli (vibriones) of the human mouth have the same reaction on gelatine as Koch's comma bacillus, then it is very desirable that we should be told how he did it, it being the testimony of a very large number of bacteriologists that these organisms do not grow at all on gelatine. An exact proof that the vibriones of the mouth have, on various culture media, the same reaction as Koch's bacillus, would be a point of great weight, while a simple morphological similarity is of scarcely any consequence whatever.

In medical journals, particularly English journals, we continually meet with such statements as—"Comma bacilli may be found in the human mouth;" "in the intestines in various disorders;" "in certain articles of diet," etc., etc. Therefore, Koch's theory of the cause of Cholera Asiatica is entirely wrong. It is surprising that such views should ever be published by any journal. What if comma bacilli are found in the human mouth? It is the testimony of ninety-nine out of one hundred that they are *not* the comma bacilli of Koch. What if they may be found in stale cheese? The cheese spirilli have been proven to be altogether a different organism from Koch's bacillus. It matters not where comma bacilli are found, or in how great numbers. The question to be decided is whether any of these comma bacilli are identical with Koch's, and the universal verdict is that they are not. It remains to be seen whether Dr. Klein can prove his statement as to the identity of the common mouth vibriones with the cholera bacillus.

To put down all comma-shaped micro-organisms as one and the same, simply because they are curved, is no more reasonable than it would be to treat all bacilli in the same manner because they are straight, and to affirm that a particular bacillus cannot be the cause of tuberculosis, because bacilli are found in the human mouth, in the intestines, and in various articles of food.

CLINIC OF PROFESSOR GARRETSON AT THE MEDICO-CHIRURGICAL COLLEGE, PHILADELPHIA.

SERVICE IN ORAL SURGERY.

Reported for the Independent Practitioner.

CASE I.—HYPERTROPHY OF THE TONSILS.

The patient presented with a marked enlargement of the tonsil of the left side, the excessive growth causing much interference with speech, and impairing the sense of hearing by pressure upon the Eustachian tube. The condition being of several years' duration, and causing much inconvenience, request was made for removal of the gland, either by cauterization or excision. The professor preferring the cautery to the more severe operation, made use of London paste as the medium for treatment. This preparation consists of equal parts of quick lime and caustic soda, mixed into a mass by the addition of a few drops of absolute alcohol. Placing the patient in such a position as to get full advantage of the light, the tongue was held down with a depressor, and a small quantity of the paste applied to the parts, upon the cup of an ordinary director, and held in contact about one minute. Upon its removal the enlarged surface was seen to assume a dark-red color, quickly followed by a deep purple, a few hours later the eschar taking on a yellowish-white appearance. The remark was made that anyone, with ordinary precaution, could apply so simple a remedy, care only being required to mix the paste to proper consistency. If too thin, it will run over surrounding tissue and cause unnecessary destruction; if too thick, it will not adhere to the parts intended to be removed. Should such an accident occur, the fauces should be immediately gargled with water. The case was cured by three similar applications to the one described, repeated at intervals of four days, the pain accompanying the treatment being inconsiderable.

CASE II.—EXSECTION OF THE AURICULO TEMPORAL NERVE.

This was a case in which the patient had suffered some years with neuralgia in the region traversed by this nerve, for which she had received varied remedies of a sedative kind, amongst others local applications of chloroform, belladonna, aconite, opium, hypodermic injections, etc., in addition to constitutional treatment, but

had only been temporarily relieved. The success attending operations for facial neuralgia in this clinic prompted her to come to it, in the hope of obtaining more permanent benefit. Causes of neuralgia of this class are not unfrequently so obscure that any treatment resorted to is likely to be experimental at best, no diagnosis being more difficult than that connected with what is ordinarily termed neuralgia. The knowledge that successful results have been obtained in similar cases, prompted the performance of an operation as the only remaining hope of ridding the patient of the almost constant pain to which she had been subjected. Simple division of a nerve is not sufficient, but excision of a portion is necessary, otherwise it will reunite, and the continuity being re-established, the operation certainly fails. The procedure consisted in first marking out the position of the superficial temporal artery, behind which the nerve ascends over the base of the zygoma. An incision upwards, about one inch in length, was then made through the integuments, the artery being cut and ligated. (Ligation of the artery is not a necessity, but in this case was practiced because of the great congestive condition exhibited about the parts.) The nerve was found in position, and a portion excised. The parts were next drawn together, two stitches inserted, and compresses saturated in phenol-sodique placed at each side of the wound. An overlying external pad completed the dressing.

CASE III.—EPULIC TUMOR.

To state that a growth is an epulic tumor gives no clue as to diagnosis, the assertion merely indicating position, the name being given to all abnormal growths upon the gum. The patient introduced had an extensive tumor, situated in such a position as to necessitate the removal of the whole of the alveolar process of the left superior maxilla, from the central incisor tooth to the tuberosity, the intervening teeth being in position. The growth was of an indurated nature, arising mainly from the periosteum, osseous trabeculæ passing from the bone beneath. In the early stages of such tumors the mucous membrane is pushed outwards, causing small prominences of a rounded shape to appear behind, in front, or between the teeth, eventually assuming extensive proportions. The operation consisted in first extracting the central, lateral, and bicuspid teeth, these latter being involved in the growth, then

with a circular saw, revolved by the surgical engine probably eight thousand times a minute, the whole of the involved portion of the bone, consisting of the alveolar process and a portion of the floor of the antrum, was cut away, the time occupied being but a few minutes. An operation of this character, previous to the adaptation of the dental engine to surgical purposes, was exceedingly complex, necessitating the making of a cut from the angle of the mouth up the side of the face, and the removal of the diseased parts by the aid of hand, saw and bone forceps, uncertainty prevailing as to whether or not all the involved portions were cut away. Operating with the engine and saw in the manner described, the professor was enabled to remove only such parts as were connected with the growth, and to say emphatically that it would not recur, neither would any disfigurement result. During the operation the posterior, or descending palatine artery, which supplies the gum tissue of the upper jaw, hard palate and alveoli, was cut, the hemorrhage being controlled by the insertion of a plug into the canal. After-treatment consisted in syringing out the debris, and washing the parts with dilute phenol-sodique. The patient rapidly recovered from the effects of the operation, and was discharged from the hospital ten days afterwards.

CLINIC OF PROF. T. W. BROPHY AT THE CHICAGO COLLEGE OF DENTAL SURGERY.

Reported by H. L. Barnum, M. D.

Case I.—Miss J. A., thirteen years of age, slight build. History—About eight months ago the left upper central incisor became very sensitive, without apparent decay or discoloration. In three weeks an abscess formed and discharged. The tooth was drilled open, and the root treated and filled by a dentist in this city. In two weeks the discharge recurred from the former abscess. Came to me August 1, 1884. An examination revealed carious bone and the exposed end of the root. It was treated with aromatic sulphuric acid, but unsuccessfully. Finally an operation was decided upon. The patient was etherized, and the exposed end of the root with the carious bone removed. The wound and cavity were dressed

antiseptically, and were kept open by means of a wax plug, to allow granulation to commence from the bottom. For dressings, boracic acid was used, because of its stimulating qualities.

Case II.—Mrs. F. H——; age twenty; American; family history good. In June last the patient was eating ice cream, when the spoon struck the gum accidentally. The pain was severe at the time, but she thought nothing of it. In a short time the tooth loosened, and an enlargement appeared over the root of the lower left incisor. It grew rapidly for a time, then ceased to become larger, and has increased but little since. Examination shows a tumor extending from the right central incisor to the left cuspid. The tumor is somewhat erectile, and has a cartilaginous appearance. Treatment—The tooth was removed and the parts dried, and kept so by means of bibulous paper, and a few drops of a four per cent. solution of hydrochlorate of cocaine applied to the surface of the tumor. In eight minutes free incisions were made, and the tumor removed without pain. The cavity was dressed antiseptically with boracic acid, using a pledget of cotton to fill the space. The wound was dressed every day for five days, when the patient was discharged.

Case III.—N. N., age four; previous health good. Present condition—A sinus opening on the chin over the mental process of the lower maxilla. History.—The trouble commenced two years ago, with alveolar abscess, the result of a fall, the abscess opening at the root of the right lower central incisor, and discharging for some time. It then ceased. A year ago a sore appeared on the chin, which could not be healed. Some carious bone was removed and the trouble ceased for a time, only to renew again. Examination shows the death of the right lower central incisor, and caries of the mental process of the maxilla, dependent on chronic alveolar abscess. At the first sitting the pulp canal was opened from the lingual surface, and a solution of carbolic acid forced through the opening, making its way out at the sinus. The root was filled with liquid gutta-percha. A week later the patient was etherized, and an incision made on the labial side. The carious bone was scraped away, and the wound dressed with boracic acid and cotton. The dressing was renewed every day for a week, when the patient was discharged cured.

Reports of Society Meetings.

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

FORTY-FIRST ANNUAL MEETING AT CINCINNATI, MARCH 4, 5, AND 6, 1885.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY E. G. BETTY, D. D. S.

(Concluded from page 203.)

SECOND DAY—MORNING SESSION.

The first subject was passed, and the second, "Recent Theories Concerning Caries of the Teeth" announced. All the members not having arrived, and it not being advisable to pass the subject without a hearing, Dr. Betty moved that in the meanwhile Dr. W. D. Kempton be allowed to read a paper on "How to Improve Tooth Structure," of which the following is a synopsis:

Cervantes said: "I had rather they had torn off an arm, provided it were not the sword arm, for thou must know, Sancho, that a mouth without teeth is like a mill without a stone, and that a diamond is not as precious as a tooth." There has been and is now said a great deal upon this subject, and what I may say will not be new to you. In the midst of discussions as to what method and material are best for filling teeth, we hear it said that the teeth are poor in quality, owing to a lack of phosphates in the food, and that these can be supplied by an oatmeal and graham flour diet. But this seldom seems to meet the approval of the patient, and the stomach soon tires of it. The fault lies in the bad cooking of the cereals, as the oatmeal, cracked wheat, etc., are put in a great quantity of water, and boiled and stirred until the resulting mass is anything but palatable. It is better to cook them in a water bath, with but little water, and thus no flavor is lost and the food can be taken with relish. Defective assimilation is often responsible for poor teeth, even though the diet be good. Assimilation is that process which turns grass into hair, when eaten by cattle, and into wool by the sheep; it is to the body what the workmen are to the building. Sunlight stimulates assimilation, and we should have more of it in our houses, upon the same principle that prompts the florist to supply abundance of it for his hot-

house. Bodily exercise creates a demand in the tissues for their proper nourishment, and that exercise is best that is combined with pleasure. Sunlight, fresh air, and exercise are the factors that make good tissues out of good food, and they are all as necessary for the production of good tooth structure as they are for the body generally. A local condition is the free use of the teeth, as an organ well used develops better than one not often called upon, so that the mania for chewing gum among children is rather to be encouraged than condemned. Amongst unfavorable influences for the proper development and nurture of the teeth is heredity, but that we cannot control. Over-stimulation of the young brain in mental studies and tasks at school is to be frowned down, as stimulation of brain in the young is always at the expense of their bones and muscles, the teeth being like chalk and the muscles almost *nil.* In conclusion, the essayist urged that the best way to induce the formation of good teeth is to nourish the body generally, and the organs of mastication will share in the summing up of the result.

Dr. C. M. Wright then read a very short paper upon the "Development Hypothesis," in which he said that if this theory be true, and if it can be shown that any existing species, animal or vegetable, when placed under conditions different from its preceding ones immediately begins to undergo certain changes of structure, fitting it for the new conditions, then it seems that dental caries can be placed in its proper relation in the economy of nature. As man and his nervous system developed, and as the facial angle became more perpendicular, the teeth lost their use as weapons of defense, and as a means of procuring food, and the gradual change caused them to deteriorate. This may account for the existence of the dentist. This being the case, how can we save teeth by any of our means and methods when they are doomed to go? The law of the survival of the fittest applies to teeth, as well as any other organ or tissue.

Dr. A. W. Harlan—I listened to Dr. Kempton's paper with interest, and I think we cannot overestimate the value of outdoor exercise. The rules for food, light and exercise must be followed, for if they are not, the teeth suffer in common with other organs of the body. Correct principles of hygiene have more to do with formation of good dentine than does the administration of specific foods. I do not take the same gloomy view of the decay of the

teeth in the present generation that many do, as our teeth compare favorably with those of prehistoric times, and even those of two or three hundred years ago. We see many more than our forefathers did, and try to save the whole thirty-two, while they were content with eighteen or twenty. The large quantities of filling materials we use attest our efforts in the conservation of the teeth, and it is not uncommon to see teeth doing good service that were filled thirty or forty years ago. Our high aim in the future is to discover causes, that we may more intelligently employ preventive means.

Dr. Wright—I am sorry if my little paper conveyed the impression that it is useless to attempt to save teeth, as we do save millions. I only took the broad view that in the future they are doomed.

Dr. Taft—I fail to see the use of discussing what will happen five million years hence, and the retrograding process Dr. Wright has mentioned. Our work is with the teeth of to-day; how to save them when diseased, and what to do to assist in the best formation of them. Specialists confined to one subject are apt to overrate its importance. You cannot specify any course that will develop one organ without building up the whole body.

Dr. Wright—I am sorry that Prof. Taft does not care for harmony and the "law of nature." I thought we might get down to something positive if we took a broad and liberal view of the whole field of development.

Prof. Taft—I deny that the matter to which Dr. Wright referred is a law of nature.

Dr. Berry—I regret exceedingly that Dr. Miller is not with us, that he might give us a thorough exposition of his theory of dental caries.

Dr. H. A. Smith—Dr. Berry has called for something on the theories of caries. There is a more recent theory than that of Miller. It is that of Black. His theory is, that what we have called abrasion near the margin of the gum is caused by the secretion of a solvent, which causes the wasting away of tissue, notably upon inferior cuspids. Is it a ferment, or what is it? The wasting occurs one-third the way up the tooth, and against gravity. Another peculiarity is, that the nearer the pulp is approached the softer is the tissue. I would like to have this explained.

Dr. McKellops—This question came up some time ago, at a social gathering at which Dr. Black was present. I see such cases all the time. One lady, aged thirty, had softening and wasting of the molars, although she had good work done. She came to me after she had been married and become a mother. All the molars and bicuspids had lost their enamel without decay. Another instance was that of a gentleman and his wife. Nothing seems to do so much good in these cases as oxy-phosphate of zinc.

Dr. H. A. Smith—Does the withdrawal of the nutrition of the dentine cause it to soften and waste away? Is it right to fill and promise immunity?

The subject was passed on motion, and the third subject, "New Remedies for the Treatment of Dental and Oral Diseases," announced. Dr. Harlan, of Chicago, read a paper which in substance is as follows:

Cocaine Hydrochlorate.—Judging from an experience of several months with this remedy, in two and four per cent. aqueous solutions, it is nearly valueless for obtunding sensitive dentine in superficial cavities. A ten per cent. aqueous solution is effective when kept in the cavity for ten minutes. A ten per cent. solution in eugenol is still more effective, and I prefer it for deep-seated cavities. For extirpation of the pulp, a ten per cent. solution in ether is preferable, as the rapid evaporation of the ether also assists in the production of anæsthesia. An injection of a four per cent. aqueous solution in the pyorrhœal pockets, prevents pain from the removal of small deposits from the roots. Cocaine is a styptic, due to a peculiar tannate that resides in the leaf of the plant. It is possible to extract three or four teeth painlessly if a solution is deeply injected near the mental foramen, as the dental nerve and its branches appear to lose sensation.

Eugenol is obtained from the oil of cloves. It is eugenic acid, and may be called the active principle. It will supersede all other remedies for the treatment of blind abscesses; I use it in preference for that purpose. No other drug is so agreeable to the patient. It is a potent germicide. It is prepared for use by dissolving in some such oil as cinnamon, sassafras, or wintergreen. Iodoform made into a creamy paste with eugenol makes an elegant and efficient dressing for an exposed or nearly exposed pulp. The same paste may be used in pockets of pyorrhœa, and will reduce the in-

flammation and pain. It will also relieve severe odontalgia when prepared thus:

℞.—Eugenol and oil of cinnamon, ʒ ij. each;
Cryst. carbolic acid, ʒ i.

Mix and apply on cotton.

Sanitas is the oxidized oil of turpentine, and contains ten to twelve volumes of $H_2 O_2$, which is permanently stored up for use in the future. I use it for treatment of all blind abscesses, and inject it into pyorrhœal pockets when an astringent is not indicated. In the latter case it is mixed with some of the essential oils, sassafras, etc., in proportion of one to three of Sanitas. It is not poisonous, except in large doses. Peroxide of hydrogen and thymol, both contained in Sanitas, are powerful germicides, and are not poisonous. When opening into a pulp chamber I always do it under Sanitas oil.

Cannabis Indica. Of this I make a tincture of ten ounces of the tops to one pint of alcohol. This is much stronger than the officinal tincture. I have removed one pulp painlessly after the application of it, and have also obtunded the sensibility of dentine with it.

Dr. J. S. Cassidy, of Covington, Ky., read a paper on "Cocaine Chloride."

Synopsis.—It is worthy of trial, and I will give a few cases in which a four cent. solution was used: First—Unmarried female, æt. twenty-five; lymphatic temperament. Applied the solution. No pain in the dentine at the end of ten minutes. Second case—Gentleman; tobacco chewer. No effect produced. Third—Child; complained of pain in adjusting the clamp. Cocaine relieved all pain. Fourth—Female, æt. twenty; superficial cavity, very sensitive. Applied cocaine; no pain. Fifth case—Pulp partly dead. Bathed with cocaine without effect. Sixth—Skeptical scientist. Applied cocaine to a sensitive tooth. No pain on excavation.

Does the effect of cocaine depend on the idiosyncrasy of the patient, or must there exist some local circumstances that resist its anæsthetic effect? Dr. E. G. Betty, of Cincinnati, in an article in the February number of the *Register*, says that vascularity seems to be an essential condition, and that its effectiveness is due to its ability to produce anæmia. On the other hand, Dr. Arnold, of Ironton, O., presents in the same number of the *Register* several cases in which

he produced perfect anæsthesia of the dentine by the use of this agent. It seems that it acts on non-vascular tissue by producing a paralysis of peripheral sensory material. As it produces no cauterization it cannot always be successfully used on sensitive dentine. It is possible that some other salt than the chloride will be used by the dentist. I am of the opinion that we ought not to call the salt hydrochlor*ate*, as a salt whose name ends in *ide* contains an element for its acidulous base. Consequently a salt formed by hydrochloric acid should end in *ide*. Others have called the salt "chloride" before, as I see in some recent publications, and it is not necessary to prefix *hydro*.

Dr. Will. Taft.—I procured some cocaine when it was first introduced to our notice, and have been using it ever since, though for obtunding sensitive dentine it is of no account. Upon soft tissues it produces anæsthesia, and is quite valuable for preventing nausea in taking impressions.

Dr Wright—I would like to ask Dr. Harlan if cannabis indica should be classed with cocaine? It has been in use in England of late.

Dr. Harlan—I do not think it should, as it does not prevent tissue waste, as does cocaine. Some gentleman, of a commercial tendency, has tried to patent a method of extracting teeth by the use of cannabis indica. I have no use for such a person. He uses a weak aqueous solution, hot, dips the forceps in it, and extracts quickly. That is all there is in it. If we could obtain the active principle, cannabin, I think we would no doubt get the same result as with cocaine. I have experimented with theine, caffeine and theo-bromine, but obtained no results. The alkaloid cocaine is soluble in 700 parts of water, but the salts are very soluble. In one case I made a rope of cotton, saturated it with a four per cent. solution, tied it around the neck of a tooth, and after ten minutes the tooth was extracted without pain. In cases requiring the removal of necrosed bone from the gingival margin, painting the gum with a four per cent. solution relieves all pain.

Dr. McKellops—I have tried the cocaine in this form: Cocaine, one and one-half grains, dissolved in one-half drachm each of alcohol and chloroform. This gives a much better result than the aqueous solution. I have also used the cannabis indica with success in the extraction of teeth.

AFTERNOON SESSION.

Dr. A. O. Rawls read an exhaustive paper on "Pyorrhœa Alveolaris," giving its history and such of the etiology as is known, symptoms, varieties and treatment, both surgical and therapeutical.

Dr. Sage—I have been in the habit of using Listerine for the treatment of this affection, and like it very much.

Dr. A. Berry—In treating this disease look well to the constitutional condition. The too free use of common salt is undoubtedly a prominent cause of the disease.

Prof. Taft—In employing the agents Dr. Harlan described, there are certain principles to guide their use. Is an antiseptic demanded? Then choose the one that seems best adapted to the case. Does the condition require a mere disinfectant? Then out of the list of disinfectants select and apply that which best meets all the symptoms. In considering the application of any agent we should know if it is antiseptic, stimulant, or astringent, or all combined. There is a great difference of opinion as to whether pyorrhœa alveolaris is local or systemic. If the constitution is good, tissues perfect, and nutrition and elimination well carried on, the disease, if present, can then only be local. In a loose, flabby system, with functions indifferently performed, there is a great susceptibility to all kinds of affections. The nomination of the disease means pus oozing from the gums. This may be produced by local irritants, which, if removed, allow the parts to restore themselves. An acrid secretion from the mouth which gets into the pockets, is sufficient to keep up the irritation. The saliva is sometimes so acrid that it burns the skin. Salt produces a change in the tissues and bodies with which it comes in contact. In the system it prevents the free elimination of waste, by preventing its free solution. I would be glad if Dr. Harlan would tell us *how* and *why* some of the agents of which he spoke this morning act, particularly sanitas and eugenol.

Dr. Harlan—Sanitas stores up H_2 O_2 which, while not generally recognized by dentists, is a germicide.

Prof. Taft—For all germs?

Dr. Harlan—For all bacterial forms. Sanitas is a true disinfectant. It does not substitute one smell for another. A disinfectant is capable of combining with the gases and other products of decomposition, and so removing it. Sanitas is the oxidized oil of turpentine, and is itself a powerful oxidizer. It does not give

up its $H_2 O_2$ until there is a call for it. It combines $H_2 O_2$ with a dressing. A great many who complain of want of success with sanitas can only blame their own carelessness. No outside matter, such as saliva, mucus, etc., should be permitted to enter the pulp chamber. Open it only when dry. If the taste of sanitas is objectionable, then use eugenol. The reputation of the latter as a parasiticide rests upon solid facts. Eugenol is a decided stimulant; it does not come under the head of disinfectants; it does not enter into combination with foul matter and break it up; its composition precludes that ($C_{10} H_{12} O_2$, if memory is correct).

Sanitas remains where it is injected; it cannot be mixed with saliva, though water may dilute it slightly. Iodoform may be disguised with eugenol or oil of peppermint. I prefer to open a pulp chamber under sanitas, then fill the cavity with gutta percha, punctured to permit gas to escape.

THIRD DAY—LAST SESSION.

The third subject was passed and the fourth announced: "Improvements in Prosthetic Dentistry." No papers.

Dr. McKellops—I have not made any artificial work for fifteen years. I saw some of Dr. Patrick's bridge work lately, and it is beautiful. It fitted so perfectly that when first put in it turned the gum white with the pressure. This passed away in a short time.

Dr. H. A. Smith—It seems to me that the accumulation of debris between the piece and the gum, would result in irritation of the mucous surfaces.

Dr McKellops—There is no occasion or opportunity for matter to get under the plate, as it is so perfectly fitted to the parts.

Dr. H. A. Smith—That is a remarkable statement, but I will not contradict it.

Dr. Osmond—All pulpless teeth to which crowns or pieces are fitted, will in time be pushed from their sockets by deposits, and the plate lifted from the gums.

Dr. McKellops—I have also seen some very beautiful work done by Dr. Morrison. One case was half of a molar cemented on, so that there could be no friction. It has been worn for years.

Dr. Sage—The advocates of bridge work do not use roots that have deposits on them, but take good teeth. There are so few op-

portunities for the putting in of bridge work, that I do not think it will come into general use.

Dr. McKellops—I would like to report another case from Dr. Morrison. In an irregularity case, an upper front tooth struck against a lower cuspid and caused pain and trouble. He extracted both, shaped the cuspid so as to resemble the upper incisor, building out the sides with gold. He burred out the upper alveolus to form a socket, and placed the remodeled tooth in it. It has now been in about five months, and is as solid as any other tooth in the head.

After the transaction of some miscellaneous business, the following named gentlemen were elected as the officers for the ensuing year:

President—A. F. Emminger.
First Vice-President—E. G. Betty.
Second Vice-President—Otto Arnold.
Recording Secretary—A. G. Rose.
Corresponding Secretary—W. D. Kempton.
Treasurer—F. A. Hunter.

The Association then adjourned, to meet again the first Wednesday in March, 1886.

SOUTHERN DENTAL ASSOCIATION.

SEVENTEENTH ANNUAL MEETING, AT NEW ORLEANS.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY MRS. M. W. J.

The annual meeting of the Southern Dental Association, for the year 1885, was held in New Orleans, commencing Tuesday, March 31st, and lasting four days.

The sessions were held at Tulane Hall, where, fifteen years ago, the second annual meeting was held. This hall is located in what was then known as the Mechanics' Institute. It now forms one of the group of buildings known as Tulane University, the old University of Louisiana.

Through the liberality of the faculty, with Col. Wm. Preston Johnston at its head, the free use of the hall and committee rooms was given, both night and day, to the Southern Dental Association, and also to the National Board of Dental Examiners.

Although southern in name, this Association is national in character, embracing in its membership, and inviting to the privileges of the floor, members of the profession from all parts of the country.

Among the representative men present and participating in the discussions may be mentioned Drs. McKellops Morrison and Spalding of St. Louis, Taft and H. A. Smith of Cincinnati, Harlan and Cushing of Chicago, Robinson of Michigan, Patrick of Illinois, Bonwill of Philadelphia, Parmly Brown of New York, Coyle of Maryland, Morgan of Tennessee, Rawls of Kentucky, Teague and Wright of South Carolina, Catching and Wardlaw of Georgia, Chisholm of Alabama, and many others. The Association brought together probably three hundred dentists, from all parts of the country.

The officers were—

President—A. O. Rawls, Lexington, Ky.

First Vice-President—W. R. Clifton, Waco, Tex.

Second Vice-President—T. S. Waters, Baltimore, Md.

Third Vice-President—B. H. Catching, Atlanta, Ga.

Recording Secretary—R. A. Holliday, Atlanta, Ga.

Corresponding Secretary—J. L. Fountain, Bryan, Tex.

Treasurer—H. A. Lowrance, Athens, Ga.

Chairman Committee of Arrangements—J. R. Walker, New Orleans.

The morning session of the first day was occupied by the usual formalities of organization, a brief but graceful address of welcome by Dr. L. A. Thurber, responded to by Dr. Morgan, of Nashville, and the President's annual address, in which was incorporated an able paper on Pyorrhœa Alveolaris.

The discussion of this paper was postponed until the subject of Pathology and Therapeutics was reached, in the regular order of business.

The Association then adjourned, and a meeting of the National Board of Examiners was held, with representatives from the State Boards of Illinois, Indiana, Michigan, Ohio, Georgia, Maryland, Mississippi and Louisiana.

During the afternoon session Dr. Wardlaw, of Augusta, Ga., read a scholarly paper on Dental Hygiene, and also a valuable paper on the same subject by Dr. B. F. Arrington, of Goldsboro, N. C. The former is briefly summarized as follows:

Dr. Wardlaw spoke of the continual struggle between health and disease, due to the perishable nature of our physical organs, efforts towards physical perfection resulting in the formulation of the science of hygiene. The laws of dental hygiene take a wide range, going back prior to the marriage state, in the choice of mates. But such laws are nearly always a dead letter, men being governed by their passions, regardless of posterity. Spartan laws aimed at "the survival of the fittest." Medical science of to-day fosters the perpetuation of the most undesirable progenitors.

The most practical thing to be done in dental hygiene, is to impress upon mothers the general principle that "clean teeth will not decay." If the mother commences with the first tooth of her first babe, a foundation is laid for good habits, and the care of the teeth will become necessary to comfort. The position was taken that inorganic mineral elements are not assimilated. Phosphatic food may be good for tonic effects, but it is not prophylactic. He gave as practical instructions the use of a moderately stiff brush, and the quill toothpick, and a soluble ant-acid powder. He condemned pastes and soap, as likely to remain too long in contact with the gums. The teeth should be exercised on good food, and on chewing-gum. Tobacco chewing prevents deposits of tartar.

Dr. Arrington's paper was also devoted to common sense and practical suggestions, rather than to theories. He considered the field limited to the care of the teeth and tissues, and the placing of them in condition for comfort and usefulness. Outside of that we get beyond our specialty. Dieting, with a view to its influence on future generations, is absurd and unpractical. Commence the care of the teeth at the age of nine or ten. Let the treatment be temporizing, not attempting too much for young patients. Age, locality and structure of tooth, should decide as to the proper material for filling. Pyorrhœa alveolaris should be called by the common name of scurvy, and treated with local applications of sulphuric acid, for months, if necessary. Prescriptions of mountain air, sea air, etc., are absurd, as far as teeth are concerned.

These papers elicited a lengthy and spirited discussion. All secret preparations were condemned. The dentist should have the exact formula of everything he prescribes or uses. Soft brushes were generally recommended, moderately stiff ones being injurious, and hard brushes grooving the enamel.

Dr. Teague advocated a brush with very long bristles, to be used with a sweeping motion, rather than scouring.

Dr. Walker said if 100 represented the range of brushes, 25 was the one to use. Soap was generally condemned as lubricating, where friction was required. The use of soap was approved by others, however, as dissolving oily deposits from greasy food.

Instruction of the masses as to the importance of preserving deciduous teeth, and in proper methods of cleaning the teeth, was urged. Tooth washes were condemned. It is impossible to so compound a wash as that it shall benefit both teeth and gums; what is good for one must be bad for the other.

The question of the administration of lime-salts, whether animal or mineral, as food or medicine, as tonic or prophylactic, was argued at length, Drs. Morgan and Patrick supporting the position taken by the essayists, Drs. Taft, Spalding, Walker and others opposing, and maintaining the feasibility of benefiting coming generations through the mothers of yet unborn babes.

Dr. Walker attributed the insufficiency of ordinary food to supply the demands of the teeth, to its lack of lime-salts; Dr. Spalding to lack of assimilative power on the part of the patient, phosphatic medicinal preparations as stimulants to assimilation being recommended; Dr. Patrick attributed bad development to a lack of function, an increase of supplies consequently being useless, while Dr. Morgan maintained that a moderate supply of even the poorest article of food, instancing rice, contained a supply of mineral elements amply sufficient to more than rebuild the entire skeleton every seven years.

The soft teeth, so universal in the Mississippi Delta, were attributed by Dr. Walker to lack of mineral elements in the drinking water. This was ascribed by Dr. Morgan to the filthy condition of the city. He admitted, however, that children in Tennessee, amidst surroundings of squalor and want, had good teeth. Dr. Walker supported his position by reference to certain limestone districts in Texas, whose sanitary conditions were so bad that typhoid fever reigned, and yet the teeth were very fine. Drs. Taft, Spalding and others, gave illustrations and cited cases supporting the position of Dr. Walker.

Cleanliness, as preventive of decay, was generally agreed upon, Dr. Morgan taking exception, and attributing decay rather to viti-

ated fluids. He also considered alkaline fluids as special cause for alarm.

Drs. Spalding, Taft, Walker and others, attributed decay largely to lack of exercise of teeth and jaw in the proper mastication of proper food. The use of chewing gum and tobacco for exercising the jaws, as advocated in the paper of Dr. Wardlaw, they do not consider an efficient nor sufficient substitute for normal exercise in mastication, and vicious as inducing an undue secretion of saliva. Dr. Taft also attributed decay to the use of food which was irritating to the mucous membrane of the alimentary tract, producing undue stimulation of the glands and consequent mixed secretions of the mouth, injurious to the teeth. The injurious effects of mouth-breathing were discussed by Drs. Taft, Rawls, Spalding, Morgan and others, the vitiated condition of the fluids and the foul breath of the mouth-breather being attributed to evaporation of watery particles, and the rapid chemical changes which take place in saliva when exposed to atmospheric currents. This was sustained by Dr. Patrick, who said that "internal could not be converted into external membrane without creating unhealthy tissues."

Temporizing work was unanimously condemned. The most perfect work possible should be done in every case, the age, locality and structure of each tooth determining what should be considered best in each instance. Dr. Morrison attributed decay to too long intervals between meals, the consequent inactivity of the jaws promoting disintegration.

(TO BE CONTINUED.)

MICHIGAN STATE DENTAL ASSOCIATION.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY E. C. MOORE, D. D. S.

The regular annual meeting of this association was held at Detroit, on Thursday and Friday, March 26th and 27th, 1885.

The time was largely occupied by necessary routine business, but some of the discussions were very interesting and profitable.

Dr. Case read an interesting paper upon artificial vela, illustrated by drawings and demonstrated upon a living subject, a young man, who without the artificial velum was unable to articulate dis-

tinctly, and whose defect was especially apparent in his efforts to pronounce words containing the hard sounds of C, K, G and Q, and other sounds requiring a forcible expression, which defects were, to a great extent, overcome by the use of the artificial velum.

The subject of "Filling Teeth, Materials, Instruments, etc.," elicited a long discussion, of which the following is an abstract:

Dr. Harroun, of Toledo, Ohio—I line almost every cavity that I fill, unless it is a very small one, with oxy-phosphate of zinc, or something of that character. In proximal cavities I am using Dr. Robinson's fibrous filling, employing a burnisher, and not a serrated instrument for inserting it. If there is any masticating surface, I fill up as far as I wish with tin, and put gold on the outside. Thus far I have met with satisfactory success. The little sensitiveness that exists in many cases soon wears away, and in a week or so there is no trouble at all. This I attribute to the chemical action of the materials, while the tooth is in a better state of preservation than if it were filled only with gold. I am entirely opposed to the use of amalgam in any form for filling teeth. I have observed many cases of mercurial poisoning arising from amalgam fillings, where the general system was seriously affected. I have, in my own practice, had three cases of marked mercurial poisoning, all arising from amalgam fillings. The general system was affected, in one case producing a loss of voice by paralysis of the vocal organs. In another case, that of a lady, the teeth were sensitive, and her husband had filled them with amalgam, because of the difficulty in using any other material. She could not eat pickles, or take acids of any description, without disagreeable sensations. Her face, which before the fillings were put in was rosy and bright, was sickly and pale, and her system showed the traces of mercurial poisoning. I persuaded her to have the amalgam taken out of her teeth, and she was better in a short time; her face recovered its color, and she could eat pickles and acids. Another case was that of a man whose teeth were filled with amalgam. He was troubled with constant hacking and coughing, and his constitution seemed to be breaking down. I was satisfied from the peculiar taste he experienced when eating, that the fillings were the cause of the trouble. He consented to have them removed, and from the time of their removal he commenced to grow better, his food tasted better, and the bad symptoms disappeared. The general health is affected very

often by amalgam fillings. There is a disposition, on the part of some members of the profession, to fill teeth for their patients according to the amount of money the patient is able to pay, without regard to whether it will injure them or not. No dentist should put amalgam, or any other bad material into a tooth, simply because he cannot get pay for anything better. The patient should be persuaded to have tin fillings. We should not put poison in the mouth because the patient cannot afford to pay for gold. The temptation may be strong; the practitioner may find it difficult to resist it; but for myself I cannot put in an amalgam filling and go to bed and sleep sweetly. It is a point of conscience. Still, if a dentist is convinced that he can put in an amalgam filling without doing harm, let him do it. I cannot, but I can put in a gold filling, a tin filling, or oxy-phosphate,or gutta-percha, and convince my patient that nothing will injure him, and at the same time feel satified with myself. The metallic materials which I use for filling teeth are gold and tin. I use tin-foil, or the fibrous tin of Dr. Robinson's make, or gold. Of course I use gutta-percha and the oxy-phosphates for temporary fillings. In all large crown cavities, where I have good anchorage, I line the cavity with oxy-phosphate or oxy-chloride of zinc, and put on a gold covering. As for the mode of introducing and condensing the fibrous filling, I use a strong, tapered burnisher. I place a sufficiency of the material into the bottom of the cavity, and press it against the uneven surface of the tooth; then I lay on another piece and burnish that down, and go on until I get it all in and it is an absolutely solid compound, burnished together. The adhesion is perfect. That filling will not turn black inside, any further than it is affected by oxidation from the outside. I have experimented and determined that the gases or secretions of the mouth may penetrate this fibrous material and change it to darker colors, but if it is burnished down that does not take place; it is all one solid mass.

Dr. Taft, of Ann Arbor —I think there is a disposition on the part of the profession to avoid the use of amalgams, or fillings in which mercury enters, and I am glad to observe this. I like the idea suggested by Dr. Harroun, of lining cavities, especially where there is a predisposition to sensitive dentine. There are various methods of doing this. Some simply use a lining made from a solution of gutta-percha, while others employ oxy-phosphates, or

materials of that kind. The point is to secure to the living dentine that may be exposed in the walls of the cavity, as near the normal condition as possible. Avoid contact with foreign agents; avoid the influence of thermal change on the living dentine, which was not intended by nature to be exposed to these outside influences. This is the great objection to gold. Many failures occur by the transmission of thermal changes to sensitive dentine, so that its physiological action in respect to nutrition does not take place, and hence we rarely find under gold fillings, though they may have been there for years, any of the improvement or solidification of dentine which is found under many other fillings. This is one of the points that should be avoided in filling with gold. The tin will meet this objection to some extent, and I notice a greater disposition to experiment with a mixture of gold and tin than heretofore. From the experiments that I have made with tin and gold (I have not yet adopted this kind of filling as a mode of practice), I am free to confess that my expectations have been exceeded; they have gone beyond my former ideas in that matter, and my opinions have been somewhat modified. It is desirable to protect the walls of the cavities, and where there is sensitiveness to protect against thermal changes. The tin and gold mixture should be tried, and faithfully tried, and reported upon. I have experimented with Dr. Robinson's metal, and like it very much. Perhaps I do not know how to use it as I ought, but for me it is not so easily introduced as gold and tin-foil. I think this is my own fault. The mixture of this with oxy-phosphate I regard as a very good filling indeed. I change method and materials every now and then, seeking to find something better than that I have, but I have never blundered into the use of amalgam.

I think tin may be used with decided advantage upon the cervical borders of proximal cavities. These are very vulnerable to the recurrence of decay. The dentine at that point is very much exposed to decay-producing agents. It is one of the most difficult points to fill. In the preparation of the cavity there is very likely to be an irregularity of the cervical edge that cannot be completely filled. In the introduction of the filling the instrument may be driven down upon that, and if it had been left acute or sharp it may be fractured or broken, and there is always danger attached to that, even though it may be but a little comminution.

Another defect often found at this point is that the filling is too full, and not dressed down perfectly smooth with the tooth, so that when cleansing with a pick or a thread everything may not be removed from that surface. Then again it may drop back a little, leaving a little pocket, which affords good lodgement for foreign substances. With amalgam fillings this projecting condition is likely to occur. Sufficient care is not usually taken to dress them down. It may be that the amalgam expands, although it is asserted that it neither expands nor contracts. I think as many failures result from the neglect to properly finish fillings, as from anything else. However carefully it may be introduced, however perfectly the cavity may be sealed, if the surface is left rough upon them foreign substance will lodge and remain, to decompose and act upon the border of the dentine, and decay will often commence at this point, even though the fillings have been well introduced and the cavities thoroughly sealed.

As to the mode of introducing tin and gold together, experiments have been made in several directions. Some line the cavities with tin in the first place, in the manner that Dr. Blount, of Geneva, lines with gold. Some say that the lining should not come to the border of the cavity, while others assert that it should, if the tooth is to be protected. That is the method of Dr. Abbott, of Berlin. As to exposing tin in the mouth, the circumstances will determine whether this can be done. Where the secretions are not vitiated the tin will remain in good condition. The cavity may be lined with tin alone, or it may be mixed with gold. You may roll together a sheet of tin-foil and a sheet of soft gold foil, and fold them together and cut off strips, and use them in that way. I think that is the way Dr. Abbott uses them, and he also suggests that it may be rolled, and made into little cylinders and little blocks. As to the class of tin-foil, I have used numbers 6 to 10 more than any others. No. 4 is considerably thicker than No. 4 gold foil.

(TO BE CONTINUED.)

FIFTH DISTRICT DENTAL SOCIETY.

The seventeenth annual meeting of the Fifth District Dental Society was held at the city of Utica, on Tuesday and Wednesday, April 7 and 8, 1885, Dr. C. E. Cherry, of Syracuse, presiding.

The annual address was delivered by Dr. Cherry, and papers were read by Drs. G. L. Curtis, E. L. Swartwout, A. Retter, and J. C. House.

Three cases of illegal practicing were reported to the society, and the proper steps were taken to stop such violations of the law.

Three members were charged with advertising in a manner deemed in violation of the code of ethics and rules of the society, and the secretary was instructed to advise such members that, unless they discontinued such advertising, their names would be presented at the next semi-annual meeting for expulsion.

The society accepted an invitation to hold a union session with the Sixth District Society, at Binghamton, in October next.

The following were elected officers for the ensuing year:

President—C. C. Smith, Ilion.

Vice-President—G. L. Curtis, Syracuse.

Recording Secretary—C. J. Peters, Syracuse.

Correspondent—B. T. Mason, Phœnix.

Treasurer—J. C. House, Lowville.

Librarian—A. Retter, Utica.

Censors—S. B. Palmer, Syracuse, Charles Barnes, Syracuse, E. L. Swartwout, Utica.

Editorial.

THE HERBST METHOD OF FILLING TEETH.

Judging by the discussions in some of our dental societies, there is much of misunderstanding and misconception of the principles upon which the rotary method of condensing gold is founded. Before the advent of adhesive foil, fillings of gold were inserted in cavities by the stuffing and wedging process. There was no such thing as condensing the foil into a homogeneous mass, but the laminæ were inserted perpendicular to the axis of the cavity, and so wedged upon each other as to be retained in place. Contour operations were, as a matter of course, impracticable under such manipulation.

When adhesive gold was presented to the profession new methods were introduced, for it is evident that the wedging of cylinders or pellets of this foil would be impossible. The qualities

of the gold demanded that a filling should be commenced at the deepest portion of the cavity, and by gradual accretion built to the surface. The mallet was but the natural accompaniment of such gold. All operations that had for their object the making of solid gold fillings, have been inserted upon the principle of the welding of two pieces of homogeneous metal under the impact of a blow, or by the force of a steady pressure. The practice of gradually building up a filling from the bottom, or the use of adhesive foil, has almost entirely superseded the old wedging process. Nearly all dentists of repute to-day fill teeth with foil that is more or less adhesive. The universal practice is to employ the mallet in some way, or to condense by hand pressure, and these methods presuppose a degree of adhesiveness in the foil used.

The Herbst system is quite distinct from either of these methods. The gold must be of the nature of that which was formerly used for the wedging process. It is quite impossible to properly pack this under the mallet, with serrated points, as it "chops" in pieces. The principle is that of burnishing together separate surfaces. Two pieces of gold that could not be made to cohere by hammering with small points, may be thoroughly welded together by the rubbing over them of a smooth instrument, the pieces being held immovably. If this were done by a burnisher held in the hand, it would necessarily be by a reciprocating movement; but a little reflection will enable anyone to perceive that the rotary burnisher accomplishes precisely the same result. And this is the essential principle of the Herbst system.

It is readily conceivable that certain desired objects can be more easily and perfectly accomplished by burnishing than by malleting. If it be desired to unite two pieces of No. 120 gold, lying one upon the other on a flat surface, no one would think of using a serrated plugger and a mallet. He would, holding them immovably, go over them with a smooth burnisher. Again, if it were desired to secure the closest approximation of a pellet or thin plate of gold to the parieties of a cavity, a little reflection will teach any one that it could be more readily and perfectly done by burnishing, than by hammering with a fine point. Theoretically then, in a cavity adapted to its use, the Herbst system must give the most perfect fillings. Practically, however, its application is somewhat limited. It is only in cavities having four good walls that it can

readily be used, and these are not the ones requiring the highest skill to successfully fill. Gold having only the comparatively small amount of adhesion that the ordinary soft foil possesses, will not answer for the rotary process, because the surfaces unite too readily, and there is a consequent "balling" of the material; so a special kind of foil is requisite, and it is a fact that gold that will not condense with the mallet, under the rotary burnisher becomes a coherent mass. But in using it the operator must remember that he is employing a manipulation that is not at all adapted to the ordinary gold, and that the process is quite distinct, and therefore requires that he drop all his usual methods.

The advantages of the Herbst system are, that gold can be condensed much more rapidly, and with greater ease to both patient and operator. The relief to the former, especially, is most marked. Its objections are, that it is practically adapted to but a limited range of operations But everyone who aspires to the name of operator, should at least make himself familiar with the principles and method of manipulation, even though he should not practice it habitually. It is not just to unqualifiedly condemn it until one thoroughly comprehends it, and has acquired some familiarity with its method of manipulation.

VULCANIZING.

There are few dentists who fully realize what a tremendous engine of destruction they keep in their laboratories, or what serious peril they may have frequently encountered in working it. When one reflects upon the power of confined steam, and then remembers that very few dentists are careful to keep safety-valves in order, he wonders that every day does not bring its terrible tale of accidents from exploded vulcanizers. Here is a table of the expansive force of steam at certain temperatures, the result of experiments by members of the French Academy.

Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.	Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.	Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.	Degrees of Temperature, Fahrenheit.	Elastic Force in lbs. per square inch.
212.	14.7	300.28	66.12	341.78	117.6	392.46	220.5
233.96	22.05	307.05	73.05	350.78	132.3	398.48	235.2
250.52	29.4	314.24	80.85	358.88	147.	403.82	249.0
263.84	36.7	320.36	88.2	366 85	161.7	408.92	264.6
275.18	44.15	326.26	95.55	374.00	176.4	413.78	279.3
285.08	51.45	331.70	102.9	380.66	191.1	418.46	294.
293.72	58.8	336.94	110.85	382.94	205.8		

Many dentists or assistants run a vulcanizer almost by guess. The thermometer is frequently cracked, and so does not register accurately. The flame is unsteady, the heat is constantly changing, and it is not uncommon to see the mercury rising to the neighborhood of 400°, through carelessness and recklessness. Not only does such heedless rashness endanger human life, but it seriously damages the products of vulcanization. A piece of work subjected to such extreme temperatures cannot be as perfect as one that is properly vulcanized, and no skilled workman who cares for uniformity of results will be so unscientific in his methods.

There is probably less vulcanizing done in our laboratory than in that of most dentists, but for fifteen years we have not allowed a piece to be done unless there was attached to the vulcanizer a reliable gas regulator for maintaining the heat at a constant and unvarying point. For ten years we have had in use one devised by Prof. Coolidge, of Boston, and manufactured by the Buffalo Dental Manufacturing Company, and never during this time has the thermometer varied three degrees from the maximum point, in vulcanizing. Even were the thermometer destroyed, or out of order, it would not interfere with perfect vulcanization. To say nothing of the better products of such a machine, or the complete safety consequent upon its use, it will save its cost in a short time by its convenience, for it is automatic in its action and requires no watching, putting itself out at the expiration of the time for which it is set. Where there is a gas supply, it seems almost criminal recklessness to attempt vulcanization without some kind of regulator, now that they are made so perfectly efficient.

SEWILL'S DENTAL CARIES.

Dr. Searle, in the April number of *Archives*, reviews Sewill's "Dental Caries" in an able manner, but the game seems scarcely worth the candle. Mr. Sewill is a rhetorician, who, if we mistake not, obtains his facts at second-hand. We do not understand that he is an original investigator, one who is qualified to speak from his own knowledge. When such an one as Charles Tomes makes the assertions in which Sewill's work abounds, it will be time for those possessed of an exact knowledge to speak at length.

PATENT BRIDGE WORK.

We publish in this number a communication from the International Tooth Crown Co., in answer to one from Dr. Dwinelle in the number for October last. Having given place to the one, we cannot refuse the other. Concerning the facts in the case we have no personal knowledge. Our readers must judge for themselves as between Dr. Dwinelle and Sheffield. But one thing we wish to say very emphatically: this communication closes out the discussion of the tooth crown patents in this journal. The subject is becoming too odorous.

INDEX MEDICUS.

It will be welcome news to many that Geo. S. Davis, the well-known medical publisher of Detroit, will henceforth be the publisher of *Index Medicus.* That journal, though a very important one in medicine, has never paid its way, and it is a gratifying evidence of public spirit when a responsible man steps into the breach, and interferes to save such a meritorious work from being blotted out. It is to be hoped that Mr. Davis will not, in the end, be a loser by his enterprise.

COMMA BACILLUS.

We have received, from Berlin, slides of the Cholera Comma Bacillus of Koch, and the Comma Bacillus of Miller, found in the human mouth, and of which he gives a description in this number. We will lend them to any of our readers who are bacteriologists, and who desire them for study, and not out of mere curiosity. Their proper examination will require first-class apparatus and manipulation.

WORTH ATTENTION.

Will the readers of this number carefully and heedfully go over the six propositions laid down by Dr. Miller on page 228 as fully demonstrated, and then take plenty of time for their mental digestion, so that they may be entirely comprehended. It will save very much of misapprehension and misunderstanding.

Current News and Opinion.

OBITUARY.

J. G. AMBLER, M. D., M. D. S.

Died suddenly, at his residence in Dobbs Ferry, New York, on the evening of April 6th, of pneumonia, J. G. Ambler, M. D., M. D. S., in the sixty-ninth year of his age.

John Gardner Ambler was born in South New Berlin, Chenango County, New York, September 2, 1816. In the winter of 1832 he entered Rensselaer Polytechnic Institute, Troy, N. Y., and afterward studied medicine in Waterford, Saratoga County. He was a student of dentistry in the office of his uncle, Dr. D. C. Ambler, in New York City.

In 1836 he settled in Philadelphia, where he continued to reside until 1842, when he removed to New York City, and entered upon the practice of his profession. He at once gained a remunerative practice and in a few years became one of the leading dentists of New York City, practicing there until the day of his death.

Dr. Ambler always took an active interest in dental societies. He was one of the original members of the "Society of Dental Surgeons of the City of New York." He was a member of the American Dental Association, and took an especial interest in the American Dental Convention, having several times been elected President of that body, and by his energy prolonging its years of usefulness. In 1855 he edited and published the "Dental Monitor," a popular journal. During his professional career he contributed frequently to the literature of the profession.

Dr. Ambler was a communicant of the Protestant Episcopal Church, and took an interest in church work, for eighteen years being vestryman and warden of Christ Church, New York. His last literary effort was a eulogy upon the life and services of the late Rev. Geo. B. Reese, of Dobbs Ferry, N. Y., delivered before the congregation of Zion P. E. Church, of that place, on the evening of March 25th. A. T.

"THE TOOTH CROWN PATENTS."

Editor Independent Practitioner:

Under the above title an article, signed by William H. Dwinelle, was published in the October (1884) number of your magazine, page 589.

That article purported to give an account of proceedings had on September 17, 1884, before Judge Wallace, in the United States Circuit Court for the Southern District of New York, in the suit of the International Tooth Crown Company vs. Berkowitz and Muller, and stated among other things that "the C. M. Richmond and Low Patents," owned by said Company, were at that time "invalidated," and that "the profession has nothing more to fear from them;" also, that "great confidence was felt that the Court would not enjoin parties under patents (meaning said patents) which it has decided to be invalid and concerning which the proof was positive that the party obtaining the patents and licenses under them knew that the patents were illegal when obtained, and that a great fraud was practiced upon the government and public by procuring, and seeking to enforce them."

False as we knew the statements to be concerning our patents, we decided to await the result of said Muller litigation before publishing a refutation of them.

We now announce to the profession,—

First. That not one of the fifteen patents owned by the International Tooth Crown Company has ever been "invalidated" or "decided to be void," either by His Honor Judge Wallace, or by any other judge or court, at any time or in any place.

Second. That certain technical objections having been raised to the issuing of injunction on the papers as originally prepared in the suit against Muller, the Company discontinued said suit and immediately sued Muller again for the same infringement on the same patents, and that in spite of the able defense interposed on his behalf, His Honor Judge Wallace has promptly enjoined said Muller from any further use of the Company's patents.

We may add that similar injunctions have been granted by the U. S. Circuit Court against Alvin S. Richmond and Cassius M. Richmond, and that the profession may understand that such injunctions are not to be trifled with, we call further attention to the fact that since the writing of said article by Dwinelle, Cassius M.

Richmond has, for disregard of such injunction, been sentenced to six months' imprisonment, to pay us a fine of one thousand dollars, and to stand committed after the expiration of said six months until we have received the amount of said fine; while Alvin S. Richmond has abandoned his practice here and departed for Europe since proceedings have been instituted against him for similar disregard.

It would thus appear that this company, instead of having any of its patents declared void, has proved overwhelmingly successful in all its attempts to enforce its legal rights, and that the profession would do well to post itself accurately as to the true facts concerning said patents and their validity.

Many of the profession are doubtless inclined to lend a ready ear to the libels and slanders constantly uttered against the company and its patents, for never in the history of the patent law has the public voluntarily submitted to payments of royalty, and the importance and value of a patent appears to be uniformly measured by the intensity of the resistance made to its enforcement.

The International Tooth Crown Company has thus far enforced and will continue to enforce as fast as possible, by legal means, the full penalty of the law against every dentist who steals its property or defames its reputation.

Time and patience only are needed for the full vindication of all the company's rights, and those practitioners are making a serious mistake who, relying on such articles as that of Dr. Dwinelle, fancy that they can disregard those rights with impunity.

Dated, New York, March 20, 1885.

INTERNATIONAL TOOTH CROWN CO.,
LUCIUS T. SHEFFIELD,
Secretary and Treasurer.

CALIFORNIA.

Under the new dental law, registration under oath is compulsory, and a State Board of Examiners has been appointed, consisting of the following dentists: Morris J. Sullivan, Chas. W. Hibbard, Thos. Morffew and S. W. Dennis, of San Francisco; E. W. Biddle, Healdsburg; J. W. Hollinswell, Los Angeles; S. S. Southworth, Sacramento.

GERMAN DENTAL FEES.

The legal fees for dental operations in the Kingdom of Prussia are not sufficient to insure an early competence for the practitioner. What would New York dentists say to the following fee bill, which is all that Prussian law allows the dentist.

For extracting a tooth at the house of the dentist	25 to 50 cents.
For extracting a root	25 to 50 "
For extracting a number of roots, each	19 to 25 "
For burring out a tooth	37 to 50 "
For filling a tooth	37 to 50 "

If a number of teeth are filled at once, for all after the first, one half price is paid.

For boring into a tooth "to the nerve"	37 to 50 cents.
For boring through a tooth to fasten artificial teeth to it	37 to 50 "
Cleaning all the teeth	75 to 2.25
Filing off a sharp tooth	25 to 50 cents.
Filing off a decayed tooth	25 to 50 "
Filing between decayed teeth	50 to 75 "
For first examination or consultation	12 to 25 "
For each succeeding examination	6 to 12 "
For regulating a tooth for a child	37 to 50 "
For a number of teeth at once, each	37 "

A dentist in Leipzig lately sent a bill for seventy-five dollars (a very reasonable amount), but could only collect by law eight dollars.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

The above Society will meet at Albany, May 13th and 14th. The Board of Censors will meet at the same place Tuesday, May 12th, for the examination of candidates for the degree of M. D. S. For full information as to the requirements of the Board, application should be made to Dr. F. French, Rochester.

J. EDW. LINE,

ROCHESTER, April 15, 1885. Secretary.

MASSACHUSETTS AND CONNECTICUT VALLEY DENTAL SOCIETIES.

A union meeting of the Massachusetts and Connecticut Valley Dental Societies will be held at Worcester, Mass., June 24 and 25, 1885. The combined membership of these two societies is a sufficient guarantee of a good meeting.

Per order EXECUTIVE COMMITTEE.

DENTAL JOURNALS WANTED.

A fair price in cash will be paid for the following volumes and numbers of dental journals, or an exchange will be made with those desirous of completing their files. If dentists will look over their old journals and see what they have to spare, and communicate with the editor, a mutually profitable bargain may possibly be made.

American Journal of Dental Science—Third Series.

Vol. I, Nos. 2, 3, 4, 6, 7, 8, 9, 10, 11, 12.
Vol. II, Nos. 3, 4, 5, 6, 7, 8, 10.
Vol. III, Nos. 3, 4, 6, 7, 8, 9, 10, 11, 12.
Vol. IV, Nos. 1, 2, 3, 4, 5, 6, 7, 8.
Vol. V, Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12.
Vol. VI, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.
Vol. VII, Nos. 1, 2, 3, 4, 6, 7, 8, 9, 10.
Vol. VIII, Nos. 1, 3, 4, 6, 7, 8, 10, 11, 12.
Vol. IX, No. 11.
Vol. XII, Nos. 4, 6, 11, 12.
Vol. XIII, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.
Vol. XV, Nos. 3, 6, 7, 8, 11, 12.

Missouri Dental Journal.

Vol. I, Nos. 2, 3, 5, 6, 9, 10.
Vol. IV, Nos. 3, 4, 5, 8, 12.
Vol. XI, Nos. 1, 3, 4, 5, 7, 8, 9, 10, 11, 12.

Dental Register.

Volumes II to XXII and XXXII to XXXVII.

Items of Interest.

Vol. II, Nos. 5, 6.
Vol. III, Nos. 8, 9.

St. Louis Dental Quarterly.

No. 3.

Dental Luminary.

Vol. I, Nos. 1, 2.
Vol. II, No. 4.
Vol. III, Nos. 1, 2.
Vol. IV, Nos. 1, 2, 3.

Dental Headlight.

Volumes I and II.

ERRATA.

In the article by Dr. Clowes in the April No., page 191, third line from the bottom, read "pockets" for "sockets," and on page 192, fifth line from the top, read "rut" for "test," and the sense will be more complete.

CHICAGO COLLEGE OF DENTAL SURGERY.

The third annual commencement exercises of the Chicago College of Dental Surgery took place at Hershey Music Hall, Chicago, Ill., on Friday evening, March 27, 1885, at 7.30 o'clock.

The address to the graduates was delivered by Prof. W. T. Belfield, M. D.; the valedictory by J. E. Hinkins, D. D. S.

The number of matriculants for the course of 1884-'85 was sixty-two.

The degree of D. D. S. was conferred on the following members of the senior class by Dr. J. A. Swasey, President of the Board of Directors:

H. Austin Armitage, M. D., England.
Edward Everett Cady, Illinois.
Jesse Austin Dunn, Illinois.
Rudolph Theodore Hasselriis, Denmark.
A. Melville Hudson, Canada.
William J. Johnson, M. D., Illinois.
Asa Holt Lane, Illinois.
Archibald Stewart McCandless, Ills.
Amos Jedd Nichols, Illinois.
Joseph J. Reed, Illinois.
Harry Leon Barnum, M. D., Wisconsin.
Warren Cary, M. D., Illinois.
Astor Gerard Gray, Illinois.
Joseph Hickey, Dakota Territory.
John Edward Hinkins, Illinois.
Charles Nelson Johnson, L. D. S., Ont.
Edmund Lambert, Illinois.
Charles William Lewis, Illinois.
Joseph Donahey Moody, Illinois.
Charles Putnam Pruyn, Illinois.
Charles Henry Wachter, Maryland.
George W. Whitefield, Illinois.

The honorary degree of D. D. S. was conferred upon Dr. E. B. Call, of Peoria, Ill.

TRUMAN W. BROPHY.
Secretary.

CHICAGO DENTAL SOCIETY.

The annual meeting of the Chicago Dental Society was held on Tuesday evening, April 7th, and the following officers elected for the ensuing year:

President—Dr. C. F. Matteson.
First Vice-President—Dr. G. W. Nichols.
Second Vice-President—Dr. W. A. Stevens.
Recording Secretary—Dr. A. W. Hoyt.
Corresponding Secretary—Dr. P. J. Kester.
Treasurer—Dr. E. D. Swain.
Librarian—Dr. J. H. Wooley,

P. J. KESTER,
Corresponding Secretary.

ANNUAL DINNER OF THE ALUMNI ASSOCIATION OF THE NEW YORK COLLEGE OF DENTISTRY.

The annual dinner for 1885 of the above-named Society, was partaken of at Delmonico's, on Saturday evening, March 7, 1885. President B. F. Luckey presiding.

The object for which this Association was organized, was to promote the best interests of the College, to keep up good fellowship among the graduates, and to advance professional interests. The organization has been very successful in its aims, and it is hoped will continue in a sphere of usefulness.

T. A. FLETCHER,
Chairman Executive Committee.

NOTICE TO SUBSCRIBERS.

The treasurer of the INDEPENDENT PRACTITIONER would be pleased to receive remittances from subscribers who are in arrears. The most convenient method of remitting is to send P. O. notes.

Senders of P. O. money orders in Europe will confer a favor by notifying the treasurer by letter, at the same time that the orders are mailed.

If any subscriber has failed to receive back numbers due him, and will so inform the treasurer, efforts will be made to procure and forward the numbers designated.

C. E. FRANCIS,
33 West 47th Street, New York.

A CORRECTION.

In the report of the fall meeting of the Connecticut Valley Dental Society, published in the *Archives of Dentistry*, I am made to say (intentionally or otherwise), that cocaine is a deadly poison. What I did say was, that *as many of the alkaloids were a deadly poison* it was best to exercise caution as to the strength used, until we had a better knowledge of the effect of this drug upon the system. The firm of whom I purchased my solution would only put up for my man a two per cent. preparation, leading me to infer that it was a matter of precaution, while in reality I discovered later that it was owing to the scarcity of the article.

EDWARD S. NILES.

BOSTON, April 1, 1885.

(53.) A case of arsenical poisoning came to me a few days since. Arsenical paste had been applied to a cavity in an inferior bicuspid, without being properly sealed up. The septum of bone between the tooth and the first molar has entirely sloughed away, and the sore does not heal. The outer and inner walls of the alveolus are evidently affected. I have used chloride of zinc and aromatic sulphuric acid with little effect. What else can I do? R.

(55.) Will somebody kindly inform me what produces, or what is the direct cause of the disease known as "Pyorrhœa Alveolaris?" G. B.

(54.) We find dentists using the terms "periodontitis," "peridentitis," "periostitis," and "pericementitis." They refer, of course, to the same disease. Now I would like to know which of these terms is most proper to use, or should be generally adopted? L. R.

(56.) The impression seems to prevail that chloroform is a more dangerous agent when administered as an anæsthetic, than ether. I would much like to know if this is a fact, and if so, how they differ in action on the system.

YOUNG DENTIST.

(57.) Will not some one who is an expert tell me how on earth the ordinary form of oxy-phosphate cements are used for capping exposed pulps? If it is mixed thin enough to flow without pressure, it will not "set" properly; while if it is so prepared as that it will set hard, it is too stiff to use without considerable pressure.

What can I do to make these cements wait a reasonable time before they get hard? The most of those that I have tried are quite as independent of any kind of manipulation as dried putty. JUNIUS.

Answers.

LABORATORY. (43.) I say that all firm teeth remaining in the mouth should be retained, and only lost ones replaced with artificial teeth. The dentist who advises a clean sweep of natural teeth for the purpose of inserting artificial ones, ought to be cleanly swept from the profession. After using the substitutes given in return, miserable at best, thousands have had to deplore the loss of firm, natural teeth, that they had allowed to be extracted through such advice as "Laboratory" gives. He will do well never more to advise such a sacrifice, and his patients will be grateful to him for only restoring the lost, and helping them to save those remaining God-given members, which no art can equal. G. W. SPARROCK, D. D. S.,

Demerara, South America.

A. B. M. (51.) It may be interesting, in connection with other answers which you may receive in reply, for me to state that for the last three years, at least, I have invariably placed a small pellet of tin foil at the cervical margins of all proximal gold fillings, and also at other points along the margins of any cavity filled with gold, where for any pertinent reason decay was to be anticipated. I have yet to see a failure of such fillings from decay at those places. I do not attempt to explain the action of the tin, but reasoning from analogy I assume for tin so placed, about the same saving-power shown by tin *per se*, or by amalgam-patched gold fillings—a power which, so far as I am informed, has never been satisfactorily explained.

Some of our chemical friends may be able to enlighten us materially.

C. D. C.

We are always glad when correspondents sign their full name to their communications. Advice is worth more when one knows who is the adviser.—*Editor.*

"PREVENTIVE MEDICINE."

PROPHYLACTIC, ANTISEPTIC, DISINFECTANT,

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NON-TOXIC, NON-IRRITANT, NON-ESCHAROTIC.

These properties added to the absolute safety of Listerine, its agreeable character and uniform strength, concentrates into this preparation every requisite of a perfect Prophylactic, and gives it undoubted superiority over all other Antiseptics, especially for internal use. The well-known therapy of the several ingredients of Listerine confirms its claims for more than merely mechanical germicidal properties.

Formula.—LISTERINE is the *essential Antiseptic* constituent of Thyme, Eucalyptus, Baptisia Gaultheria and Mentha Arvensis in combination. Each *fluid drachm* also contains *two* grains of *refined* and *purified* Benzo-Boracic Acid.

Dose.—One teaspoonful *three* or *more* times a day (as indicated). As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used *ad libitum*, diluted as desired.

The universal commendation of LISTERINE by Physicians and Scientists of all Schools throughout the United States, after five years' thorough Clinical Experience, has fully established its value in **PHTHISIS, DYSPEPSIA, DIPHTHERIA, CATARRH, DYSENTERY, SCARLATINA, SMALL-POX, ERYSIPELAS, TYPHOID** and other **FEVERS**; and as the most grateful and pleasant disinfectant and prophylactic for **VAGINAL INJECTIONS** in **OBSTETRICS, LEUCORRHŒA, GONORRHŒA**, and, notably, for the hands, after Surgical and Gynæcological Operations.

This accumulated evidence of merit indicates its special adaptability to

DENTAL PRACTICE.

The testimony of its value in the treatment of ORAL DISEASES, in Dental Practice, is set forth in a special pamphlet on that subject to be obtained gratis on application, together with many Valuable Clinical Notes and Reprints by Eminent Surgical, Medical and Dental Authors.

☞Three Reprinted Lectures on **CHRONIC NASAL CATARRH**, (illustrated by forty wood cuts,) by Prof. GEORGE M. LEFFERTS, M. D., New York City, are now ready for delivery, free of cost, to those who mention this Journal in making application.

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1-5-AN-1

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

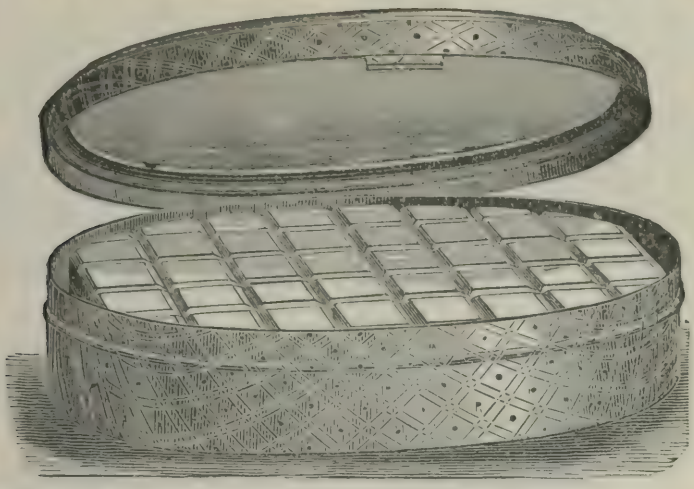
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

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PERFECT TOOTH POWDER



ENAMELLED METAL BOX
REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.



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This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure.*

We claim it to be superior to any other make for its peculiar *softness.* It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling.* If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

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for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

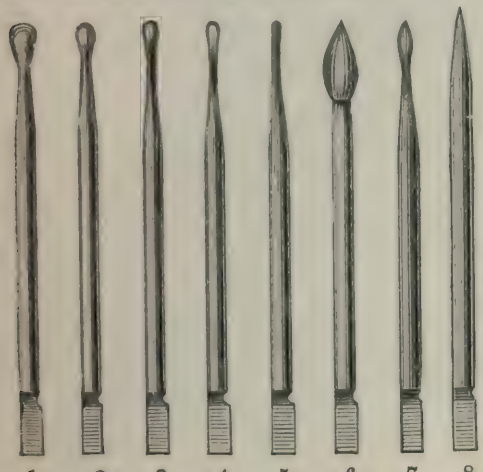
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Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

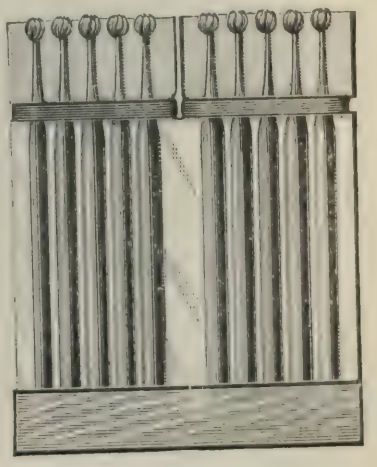
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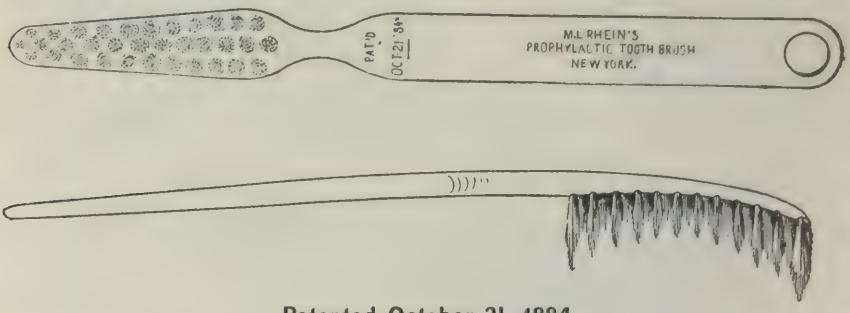
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In boxes of ten cards, - - - - 25.00

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PROPHYLACTIC TOOTH BRUSH



Patented October 21, 1884.

The merits of the above Brush have been tested very generally by the Profession during the past year, and it is almost invariably endorsed as one of the best things in its line.

The facilities for manufacturing the same have been greatly improved, and it is now presented not only as a *model* tooth brush, but as being far superior in durability and excellence of finish to almost every brush in the market.

NO OTHER BRUSH CAN SO PERFECTLY CLEANSE THE POSTERIOR AND BUCCAL ASPECT OF THE WISDOM TEETH.

Space can not be taken up here in enumerating the invaluable features of the brush; for other points of excellence in reference to the brush and care of the mouth, send stamp for pamphlet.

The following low prices have been put on the brushes:

Adult's, - - -	per doz., $3.00	Child's, - - -	per doz., $2.50
" half gross, -	" 2.75	" half gross, -	" 2.25
" 1 gross or more,	" 2.50	" 1 gross or more,	" 2.00

Sample brushes will be mailed on receipt of 30 cents.

In ordering brushes send 13 cents per dozen extra for postage, if desiring them mailed, otherwise they will be forwarded by express.

The Adult Brushes come packed in boxes of a dozen each, of which (unless otherwise specially ordered) the bristles of three are soft, three hard, while six are of medium quality. Each individual brush is in an envelope, having printed directions thereon for its proper use.

The following list constitutes a few of the profession who *endorse* the brush:

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T. W. Brophy, M. D., D. D. S., Prof. of Oral Surgery, in Chicago Dental College.
Frank H. Gardiner, M. D., D. D. S., Chicago.
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E. Parmley Brown, D. D. S., Flushing, L. I.
E. S. Gaylord, D. D. S New Haven, Conn.
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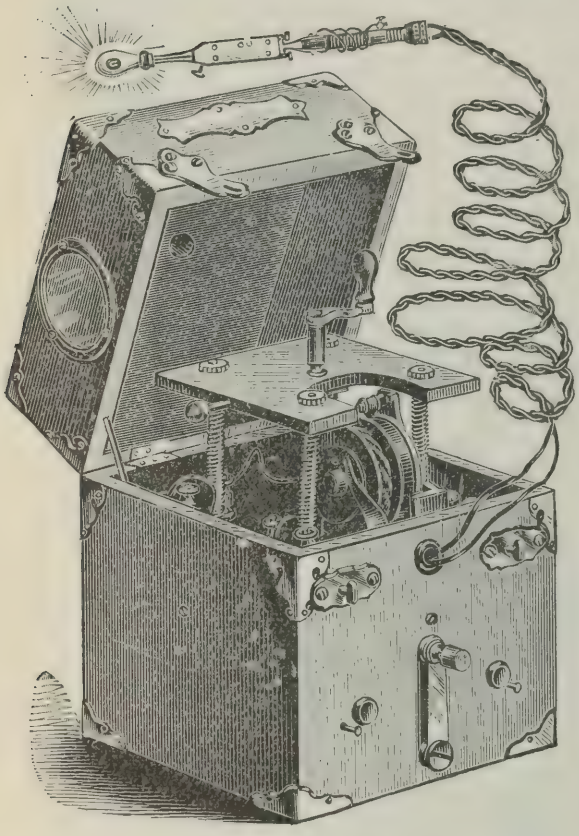
DAWSON'S WHITE ALLOY

Will remain just as it is put in the mouth.

Hundreds of Dentists say (who have now been using it for from 3 to 5 years,)

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The St. Clair Electric Dental and Surgical LAMP.



THE ST CLAIR DENTAL AND SURGICAL INCANDESCENT ELECTRIC LAMP is the most compact and efficient apparatus for dental and surgical operations in the world.

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The attention of the Dental and Medical fraternities is respectfully directed to this Lamp. For the Microscope it is simply perfect.

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THE

Independent Practitioner.

VOL. VI. JUNE, 1885. No. 6.

Original Communications.

BIOLOGICAL STUDIES ON THE FUNGI OF THE HUMAN MOUTH.

BY PROF. DR. W. D. MILLER, BERLIN.

(Concluded from page 232.)

By use of the methods described I have isolated twenty-two different fungi from the secretions or deposits of the human mouth, and have endeavored to determine, as far as possible, their separate peculiarities of growth, physiological action, etc. It will, however, at once suggest itself to every one, that a thorough study of twenty-two different fungi involves an enormous amount of labor, and might constitute almost a life task for one experimenter. The task is, moreover, rendered still more difficult by reason of the fact that many of these fungi show differences of action when cultivated in different media, rendering the number of experiments necessary to come to a definite conclusion doubly great. I shall, therefore, not attempt to present an exhaustive treatment of the subject, but rather an introduction, hoping, at the same time, to establish some points which may be of use in bringing about a clearer understanding of the factors involved in the production of dental caries.

Regarding the first point to be considered—the morphology of the fungi—it is not at all necessary to enter into a minute description of all the different forms here presented. The figures will give a sufficiently clear idea of their diversity, and the appearance

of their colonies under a low power. For the rest, suffice it to say that ten of them are micro- or diplococci, five are bacteria and six bacilli. Some show more than one form of development. It would, however, lead us too far from our subject to discuss this fact here.

In liquid media, three grow out into long leptothrix, forming bundles or meshes of intertwining uni- or multicelluar threads, while one develops into spirilli; eight are motile, fourteen are non-motile, while three only have been seen to form spores. The others multiply by division alone.

With reference to the latter point, however, I have not made examinations sufficiently careful or extensive to be able to speak decidedly. Eight liquify nutritive gelatine, one converts it into a paste, thirteen leave it unchanged. On agar-agar, the differences of growth are not sufficiently pronounced to deserve particular mention. In gelatine, the microscopic appearance of the colonies of a sufficient number of these fungi, is shown in the figures (b). It will be seen that the appearance of the colonies forms a much safer means of differentiation than the morphological characteristics of the fungi, it being very seldom that, in growing, two fungi present exactly the same appearance. An exception is, however, presented by 6 and 7, which to the naked eye and under the microscope grow on gelatine exactly alike; moreover, on potato, white of egg, blood-serum, agar-agar and milk, their effect is identical. One, however, produces a yellow coloring matter, the other not, and thereby they are easily distinguished. The others may all be readily distinguished by their growth on potato.



Fig. 1

In relation to oxygen, they show great differences. Ten are strictly aerobian; i. e. they grow only where the air has free access. Four are not strictly aerobian; i. e. they propagate also when the atmospheric air is excluded, though not so rapidly. Eight grow equally well with or without access of air. Sixteen produce an acid reaction in a solution of beef extract, peptone and sugar. Four produce an alkaline reaction without the appearance of bad smelling products, and appear to leave the solution neutral. With regard to the six, however, the results were not satisfactory, sometimes the reaction being acid, at other times neutral or alkaline, depending somewhat upon the material used for the cultures.



Fig. 2

Some which produce an acid reaction in fermentable solutions, give rise to an alkaline reaction in non-fermentable solutions. The acid produced is probably, in all, or in nearly all these cases, lactic acid. This fact I established for No. 1 by chemical analysis, for No. 2 by forming the zinc salt and crystallizing, for No. 5 by the color test.* In the other cases the acid was not determined. Thirteen were repeatedly cultivated on potato. Of these, five grew rapidly, one in particular covering the whole surface of the section in forty-eight hours, and completely liquifying it to a depth of one to two mm., the liquified mass flowing off at the sides; the others develop very slowly, and attain only a limited growth. I am not able to say whether any of them possesses a diastatic action. It is, however, highly probable. Fifteen were cultivated on boiled white of egg. Four grew very rapidly, No. 19 (see fig. 13) in particular, in from two to four days, converting the egg into a semi-transparent, pasty mass, which gradually disappeared. In the first two days large quantities of sulphuretted hydrogen are developed; later, ammonia. Seven grew slowly on the white of egg, and four scarcely at all. The nourishment of the fungi naturally takes place at the expense of the albumen of the egg, which is converted into a soluble variety by the peptonizing action of the fungus. In two cases the presence of peptone could be detected in the dissolved mass after separation from the albumen, by the biuret reaction, the organisms producing more peptone than they needed for their own consumption.

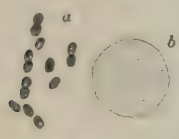


Fig. 3

Some of them produce in fermentable solutions considerable quantities of gas. If a glass bulb, with a fine stem drawn out to a point, be filled with milk inoculated with No. 3, (see fig. 2), otherwise sterile, and kept at blood temperature, in twenty-four hours so much gas will be generated that on breaking off the point the whole contents of the bulb will be ejected with considerable force. The same effect

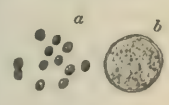


Fig. 4

*Two drops carbolic acid, one drop chloride of iron, twenty ccm. water, produce a violet color which becomes yellow on the addition of lactic acid, even in very dilute form. I am not prepared to say that this is an absolutely sure test for lactic acid. It is the test used by Prof. Ewald and others, for detecting lactic acid in the stomach, and is considered by them to be decisive. Of course the culture material itself must not give this reaction. Beef extract, for example, cannot be used, as it already contains lactic acid. A few other substances also give this reaction, but none, I believe, which are likely to be produced in these cultures.

may sometimes be produced, though not so markedly, when non-fermentable solutions are used. We may expect a similar action to take place when we seal up a dead pulp in a tooth, not only the gas itself escaping through the apical foramen, but, if its exit is hindered, ultimately forcing particles of the decomposing pulp through with it. The question suggests itself, whether certain configurations seen in carious dentine may not owe their origin in part to the pressure of gas.



Fig. 5

Four produce coloring matter, Nos. 5 and 7 (figures 4 and 5), in gelatine cultures some days' old, forming brick-yellow masses, such as may be seen occasionally on the buccal surface of teeth which are not kept well cleaned.

On potato they appear bright yellow. Nos. 10 and 13 give the gelatine for a space one cm. in diameter around the colony, a grass-green tinge. I doubt very much whether either of these organisms has anything to do with the production of green stain, all my attempts to isolate a chromogenic fungus directly from green stain having thus far failed. Cultures of some of these fungi were made on dentine and enamel. Sections of dentine, when decalcified neutralized and soaked in saliva and sugar, formed, when kept in a perfect damp cell, a medium on which a considerable development took place, microtome sections of the dentine after two weeks showing a destruction of substance at the point of inoculation.

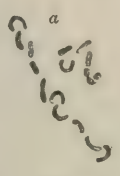


Fig. 6

On sections of normal dentine, the fungi in some cases appeared to maintain an existence until the organic matter exposed upon the surface of the section was consumed, after which the development ceased, while normal enamel, as might have been expected, formed about as good a culture substratum as glass or porcelain.

A description of the cultures in milk, blood-serum, etc., is not necessary for our present purpose. Also, experiments on animals have been made in too limited a number to lead to accurate results. It is very plain, however, that a study of the pathogenic character of twenty-two fungi is out of the question. No. 19, which possesses peculiar interest on account of its similarity to the cholera-bacillus, was tested on mice, guinea-pigs and rabbits. A small quantity from a pure culture injected into



Fig. 7

the abdominal cavity of mice, almost invariably caused death in a few hours. Guinea-pigs and rabbits have thus far shown themselves proof against it, even when large quantities were injected into the duodenum (the *ductus choledochus* not being ligated.) Experiments were made with a number of antiseptics, in addition to those reported in this journal (Vol. V. page 283.) Arsenious acid, contrary to the repeated statements of one of our journals, possesses an antiseptic power at least half as great as that of carbolic acid, and about twenty-five times greater than absolute alcohol. Chlorate of potassium, on the other hand, possesses scarcely any available power whatever. Peroxide of hydrogen proved to be particularly active. These experiments are not yet completed, and will therefore be given in a separate paper.



Fig. 8

The following practical conclusions appear to follow from the experiments above recorded:

1. A great majority of the fungi found in the human mouth are capable of producing acid from cane or grape sugar, and it is probable that, *with very few exceptions*, all can, when the proper conditions are presented to them. In nearly all cases which have been examined with special reference to this question, the acid has appeared to be lactic. The acetic acid fermentation, which cannot go on at temperatures above 35° C. (Fluegge), is out of the question in the human mouth, nor is there, as yet, any proof of the presence of more than minute traces of butyric acid.

2. In non-fermentable substances, the reaction will be found either neutral or alkaline, in some cases considerable quantities of ammonia and sulphuretted hydrogen being produced. If, therefore, a decomposing pulp is sealed up in a tooth, its reaction cannot be acid, and caries cannot take place either in the pulp chamber or root canals.

3. Of considerable interest is the fact that the same fungus may produce an acid reaction in one substratum, and an alkaline in another. If, for example, No. 19 (Fig. 13) be cultivated in certain neutral, non-fermentable substances, an alkaline reaction will appear. If, then, sugar be added, the reaction will in a few hours change to acid. In such a case we undoubtedly have two distinct processes going on; first, the nutrition of the organ-



Fig. 9

ism accompanied by the appearance of alkaline products, and secondly, its fermentive action accompanied by acid products. Ordinarily, the latter so outweigh the former that the resultant reaction will be acid. This is, however, by no means necessarily the case. On the other hand, conditions may readily be produced under which the resultant reaction will be neutral or alkaline, especially in the human mouth, where so many different fungi and so various conditions are present. In such a case, the result would be to put a temporary check upon the advance of the decalcifying process; in other words, upon the caries itself. In the case of particularly foul-mouthed persons, the foulness itself may become a preventive of caries.

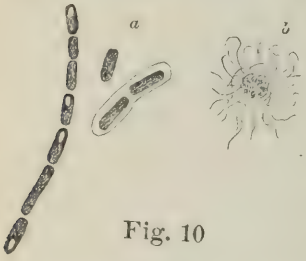


Fig. 10

4. The possession of a peptonizing action by a large number of these fungi, readily accounts for the solution of the decalcified dentine.*

5. Any one of these fungi which can produce acid by fermentation of carbohydrates, or can dissolve the decalcified dentine, may aid in the production of caries, while any one which combines both these properties, as many of them do, may alone bring about the phenomenon of dental carries. A solution of the dentine or enamel, without previous decalcification, cannot take place. The fact which I have so often affirmed, and which was denied by Milles and Underwood, that one continually meets with large tracts of softened, non-infected dentine, has been completely confirmed by Arkovy and Matrai. They say, "the invasion extends, however, only to a certain depth, and only isolated tubules show a deeper in-



Fig. 11

*Not a little confusion has been introduced by attempted artificial definitions of putrefication and fermentation. The idea that every change in nitrogenous organic substances must be of the nature of putrefaction, is particularly misleading. A ferment of the nature of pepsine, which dissolves coagulated albumen, is widely distributed among the fungi of fermentation, as well as putrefaction, and the schizomycetes in general require nitrogenous substances in some shape, for their nutrition. The dissolution of the organic portion of dentine is by no means dependent upon the presence of putrefactive organism, but may be accomplished equally well by fermentation. As stated in previous papers, I never found a putrefactive organism in the deeper portions of carious dentine. Moreover, the acid reaction of carious dentine is highly unfavorable to the development of such organisms. I intend to repeat and extend my experiments on this point. The presence of putrefactive organisms, while it would accelerate the second stage of caries, could only retard the first

vasion, sometimes to twice the depth, and reach the border of the normal dentine," the whole territory between the isolated tubules being free from invasion.



Fig. 12

6. The comparative or complete independence of many of these organisms of the free access of air, renders their propagation within the dentine, or under fillings where softened, non-sterilized dentine has been left, an easy matter.

7. The fact that dentine and enamel form so exceedingly poor culture substrata for schizomycetes, is an additional proof of the position that their attack upon the teeth is only secondary; i. e., they owe their rapid development to the secretions, deposits, etc., of the oral cavity, and not until the tissue of the tooth has undergone a certain change—first decalcification, second peptonization—can they adapt it to their nourishment. The decalcification is produced chiefly by acid, resulting from the action of the organisms upon certain carbohydrates in the human mouth, while the peptonization is produced, either by the direct action of the protoplasm of the organisms upon the decalcified dentine, or by the action of a ferment which they produce.

A knowledge of the properties of the fungi of the human mouth, as given above, combined with a microscopic and chemical examination of carious tissue, and comparative studies of caries of living and dead teeth, appear to me to furnish a fair solution of the phenomena of dental caries. That other agents than those of a parasitic nature are also often concerned, there can be no doubt. To say nothing of predisposing causes, an acid reaction of the oral secretions, acid medicines, acid foods, etc., may give rise to caries at points which otherwise probably would have escaped.



Fig. 13

AMERICAN DENTAL ASSOCIATION.

The next meeting of this society will be held in Minneapolis, the first week in August. Every member should now begin to prepare for it.

THE CONSTRUCTION OF SUERSEN'S OBTURATORS.

BY DR. TH. WEBER, HELSINGFORS, FINLAND.

(Concluded from page 245, May number.)

When a correct plaster model has been obtained, a plate is made with an appendix on its posterior border extending somewhat into the cleft, to which a strong wire loop is attached. (See fig. 1.)



Fig. 1.

The wire loop upon which the obturator is to be constructed, must not extend further down than the beginning of the uvula. Its direction, when put into the mouth, should be a little above the muscles of the soft palate, in such a manner that when the gutta-percha is applied it will occupy about the centre of the bulb.

If the cleft involves the hard palate, the plate must cover the defect to the lower border of the nasal cavities. The plate should not extend into the nasal cavities, as it may obstruct the free passage of the air through them, in consequence of which the letters M and N would be pronounced indistinctly, and the vowels be accompanied by a nasal sound.

The palate must be held securely in position by at least two well fitting metal clasps, around the molars or bicuspid teeth, if possible. I have constructed one obturator for a patient who had lost all of the teeth from the upper jaw, but I find that it is much more troublesome to become accustomed to an appliance where it cannot be attached to the natural teeth.

When a plate has been constructed as above described, it should be put in the mouth and the patient directed (if time will permit) to wear it for a day. After the plate has been put in position and before the construction of the obturator, we must take care: 1st. That it does not cause pain in any place. 2d. That it does not drop when the wire loop is pressed backwards with the finger. 3d. That the loop occupies its proper position (see fig. 2), after which the construction of the bulb can be commenced.

For this purpose crude gutta-percha has wonderful properties, and is the substance with which Dr. Suersen has achieved his great success in obtaining a correct impression of the muscles of the soft

palate and pharynx during articulation, which method was first described by Dr. S. at the meeting of the *Central Verein Deutscher Zahnarzte*, at Hamburg, in 1867. This gutta-percha, after having been warmed, remains for a few hours soft enough to enable the muscles to imbed themselves in it to great perfection, and without discomfort to the patient. In constructing the bulb, the gutta-percha may be warmed over an alcohol lamp, and moulded around the wire loop. The first day only enough gutta-percha should be applied to barely touch the muscles of the soft palate on either side, and the superior constrictor of the pharynx on the posterior part of the bulb. This first layer of gutta-percha must become perfectly hard before another layer is applied, as the action of the muscles may cause the bulb, when modeled too large at the first sitting, to become loosened from the wire loop. The hardening of the first layer, however, if the time is limited, may be accomplished by cooling the apparatus with ice. The amount of gutta-percha to be applied around the loop depends, of course, upon the width of the cleft. The thickness, however, is somewhat definite.

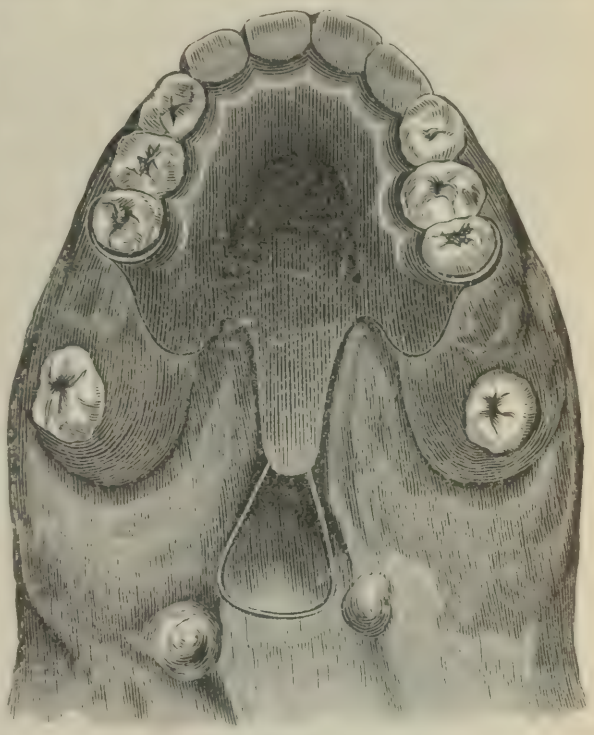


Fig. 2.

Until a few months ago Dr. Suersen, as well as the writer, had made these obturators thick and large, measuring on their posterior part from three-quarters to one inch in thickness, and this, on account of the weight and expansion of the rubber, made it necessary to vulcanize them hollow. While in this country, I have made experiments which have demonstrated that an obturator that is one-eighth of an inch in thickness in its middle part, and three-eighths of an inch high around the borders which are in con-

tact with the muscles, will give the same result as a very thick apparatus. The size of the gutta-percha modeled around the wire loop should, therefore, if a thin obturator is to be made, not exceed one-half an inch in thickness.

When the first portion of the gutta-percha has become hard, another layer may be added, but before this is done it must be carefully dried with a towel and touched with a hot knife. The gutta-percha to be added must be warmed over an alcohol lamp, and with a hot knife modeled into the desired form. If any gutta-percha is to be cut away at any time, the knife must be made sufficiently hot so that it will cut without much pressure. Whenever any gutta-percha has been added to the bulb, as soon as the apparatus has been replaced in the mouth the patient should be directed to swallow, and then read a few lines, or pronounce some letter of the alphabet. Whenever the gutta-percha is in contact with the muscles of the soft palate or pharynx for a few hours, it is marked by them as a polished surface. When, therefore, an obturator has been in position some hours, the places where it is in contact with the muscles may be easily recognized. A rough depression always signifies insufficiency of material. In those places more gutta-percha should be added, until all surfaces which lie in contact with the muscles of the soft palate and pharynx are perfectly smooth.

The lingual surface of a Suersen obturator should be in about the same line as the velum when elevated by the levator palati. The posterior wall of the bulb should always be made to come in contact with the superior constrictor of the pharynx, in that place in which this muscle shows its greatest constriction when the letter A is pronounced. When the apparatus is too long, it is the cause of nausea, and is an obstruction in deglutition; if it is too short, the letters G and K cannot be pronounced perfectly.

In the middle line of the posterior border I have found some advantage in adopting the idea of Dr. Bishop, which consists in forming an imitation of the uvula, as this enables us to make a corresponding excavation at the upper border of the posterior surface, thereby enabling the secretions which collect in the upper surface of the bulb to flow off freely. During articulation the soft palate is continually elevated. It is, therefore, advisable to assure an absolutely tight fit, and the upper border of the lateral walls, which are in contact with the muscles of the soft palate, should be directed a

little outwards. For this purpose the bulb across the lingual (lower) surface should be a little narrower than at the same point at the nasal (upper) surface. The posterior surface of the bulb differs in form in almost every case. On the lingual border, about the median line, where the uvula is situated, the upper border should be scalloped out to correspond with the condition presented.



Fig. 3.

The superior surface should be concave, as represented in fig. 3. To assure a perfect adaptation it is best, even when all these surfaces have been worn perfectly smooth, to add a very thin layer of gutta-percha all around the bulb, and then let the patient wear the apparatus for a few days longer. But it should be carefully observed that the posterior wall of the bulb does not extend higher up than the point where the greatest contraction of the superior constrictor muscle is noticeable. In such an instance the pronunciation of the word "mamma" will sound "baba," and the patient will not be able to breathe nor blow freely through the nose. Whenever we have added too much gutta-percha, the bulb should be carefully warmed and the obturator replaced in the mouth. If now the patient is directed to swallow, then blow his nose, and then read a few lines, we will find that the muscles have pushed away the excess of material, which afterwards may be trimmed off with a hot knife. When we are satisfied with the adaptation and position of the obturator, and we are certain that no more alterations are necessary, the gutta-percha bulb may be replaced by either hard rubber or metal. Before placing the obturator in the flask, it is better to secure a correct mould of the same in plaster, that in case anything should happen to the bulb it may not be necessary to commence again with the construction of a new bulb in gutta-percha. This mould must be made out of as many sections as necessary, that the obturator may be removed from the mould with ease. When the obturator has been carefully removed from the sectional mould, it is invested, with the lingual surface downward, in the lower part

of a large rubber flask. The gutta-percha bulb should be set into the plaster in such a manner that only its superior surface is exposed. (The plaster in the lower part of the flask should cover every surface of the gutta-percha bulb which has been in contact with any of the muscles of the mouth.) When the plaster is thoroughly hard, and before that for the upper part of the flask is to be poured, the lower part of the flask is put in warm water, of a temperature not higher than 125° F., when all the gutta-percha is to be very carefully removed out of the flask with an instrument. After the gutta-percha has been taken out, the wire loop and the hard rubber appendix should be washed with chloroform, until every trace of gutta-percha is removed. When the chloroform has been allowed to evaporate, we cover the matrix, out of which we have removed the gutta-percha, with a layer of sheet wax, about as thick as we desire to make the bulb of rubber, which need not be thicker than about one-eighth of an inch in any place. The upper part of the flask may then be adjusted upon the lower one thus prepared, and the plaster poured into it, and further manipulated like an ordinary rubber plate.

In finishing the hard rubber bulb, great care should be taken not to touch the sides which lie in contact with the muscles of the soft palate and pharynx with the file, sand-paper, or anything that may remove the contours made by these muscles. All edges, as well as the lingual (lower) and the nasal (upper) surfaces, should be carefully smoothed and polished.

When the obturator is to be made entirely of metal, the plate covering the hard palate with the appendix and wire loop has to be constructed first, as in the case when a rubber plate is desired, when the gutta-percha bulb is moulded in the manner as mentioned above. When the bulb has been constructed, the obturator is imbedded in plaster with the lingual surface downwards, in sections, as mentioned before, the upper surface being left free. When the plaster is perfectly hard the obturator is removed, the sections put together, and thoroughly soaked with a solution of soap in alcohol. This matrix is then filled two or three times, according to the number of metal casts desired, with a mixture of sand and plaster. These pieces of sand and plaster, when removed from the matrix, represent an exact duplicate of the gutta-percha bulb, and are to be fastened upon another large, flat piece of sand and plaster, and grad-

ually but thoroughly dried. When perfectly dry, a strong iron casting-ring, with its widest side downwards, is placed over one of them, and surrounded with casting sand. Into this mould we pour either zinc, type, or Spence-metal, which will give us an exact duplicate of the sectional plaster matrix.

The metal matrix, when cold, is to be removed from the iron ring, and if the edges are much overhanging, the matrix should be sawed about half way through in two or three places, and then broken. This broken matrix, now being an imitation of the sectional plaster one, is then fitted back again into the strong iron casting-ring, into which the metal bulb is to be shaped. The metal best adapted for this purpose is thin, twenty-two carat gold plate, subsequently stiffened by lining it with platinum wire gauze, and then by blowing eighteen carat gold solder over that. When the bulb has been shaped perfectly, it is attached to the appendix of the gold plate in exactly the same position formerly occupied by the gutta-percha, which may be determined by placing both the plate and the bulb in the first sectional plaster mould. When the bulb has been securely soldered to the appendix of the plate, the missing lower (lingual) or upper plate (according to which side was superior when the bulb was struck up) is to be attached. In soldering the upper or lower surface upon the bulb, care should be taken to make a small hole into one of the surfaces for the escape of the air while soldering, which afterwards may be closed by a screw, or by soft solder. The obturator is then, after it has been carefully finished and polished, ready for use.

When these instruments have been carefully constructed in the manner mentioned above, they will give satisfaction in every case, although a great deal of the success depends upon the intelligence and the persistence of the patient. With an acquired lesion there will be very little trouble. The patient has already been taught to articulate, therefore, as soon as the lesion is repaired perfectly, in the majority of cases they can articulate as perfectly as before the perforation of the soft palate. With a congenital defect, on the contrary, the success is never as rapid, for, as mentioned before, these patients do not know how to use the muscles of the tongue, soft palate, and pharynx correctly, to produce perfect articulating sounds. The most difficult letters for such patients to pronounce are S, R, G and T, in combination with other letters, as Sister, Reap-

ing, Coming, Going, Teething, etc., and however perfect the obturator has been constructed, the patient will be unable to acquire articulation without teaching. We should, therefore, see such patients frequently, hear them read slowly, and correct every mistake, by explaining to them what position they should give to the muscles of the tongue to overcome these difficulties; and as daily instruction will be necessary, it will be desirable to have friends of the patient present, that they may become acquainted with the manner of correcting mistakes in articulation.

A STUDY OF TOOTH DEVELOPMENT WITH SPECIAL REFERENCE TO THE FORMATION OF ENAMEL.

The following is a condensed report of a paper read by Henry Beales, Jr., M. D., before the Odontological Society of Pennsylvania, April 4, 1885. Professor S. H. Guilford presiding.

The paper was introduced by a description of the first morphological manifestations of tooth development, as constituted in the formation of what is known as the "dentinal ridge" and "lamina," drawings being exhibited to assist in a more thorough comprehension of the subject. The first illustration was taken from an embryo *before* dental formation is perceptible, and represented the mucus lining of the mouth derived from the epiblast and epithelial in character, the mesoblastic structure in type of connective tissue, and, separating the two, a thin layer, or basement membrane. Particular attention was called to the fact that the upper portion of the section, above the basement membrane, under a low power simulates in appearance columnar epithelium, and that this illusion is dissipated by a view of the so-called columnar layer with a one-fifth objective, under which it is seen that it is an area composed of epithelial cells, which by their relative arrangement are sub-divided into a superior and inferior zone, the cells occupying the upper or superior zone being more super-imposed than those below; also that the nuclei of these super-imposed cells are less distinct than those in the lower area. From this premise it is inferred that the epiblastic layer for the superior zone is concerned in the evolution of one element, and the inferior in another. Proceeding, the next diagram represented the dentinal ridge and lamina, the cells composing the superior zone having undergone marked proliferation,

and those of the inferior zone having sunken into the mesoblastic area, the V-shaped invasion being a purely physiological action. The next noticeable step is the branching out, from an arm of the V-shaped lamina, of the so-called Cord. As this is achieved the zone manifests a trivial, but at the same time a definite, demonstrable, and undeniable change. The cells of the superior epiblastic zone are now *transverse*, as far as the isthmus of the cord; the cells contained in its expanding extremity not having undergone the transverse change, but being in a state of local functional activity, the result is the formation of a stirrup-like growth, the special vital endowment being possessed more particularly by those cells which occupy the position corresponding with the base.

The next diagram submitted represented a section showing the first morphological developments, bearing directly upon the facts determining the hypothesis submitted, and attention was called to the obliteration of the neck of the cord from the arm of the V-shaped lamina; the stirrup-shaped development of the extremity of the cord; the transverse cells, the incipient change prior to the formation of a reticulum; the mesoblastic area and seat of development of the dentinal bulb, the more active area corresponding with the apex of the future tooth; the sac of follicle, and the basement membrane. The different appearance presented at the base of the stirrup from the sides or arms, can only be differentiated by a comparatively high power objective—one-fifth or one-eighth. The special feature to which reference is made is that at the upper area of the base the cells are proliferating, and present marked activity at a point corresponding with the situation of the future apex; that the central area is relatively inactive, and that the inferior area, like the superior, is active. The base of the stirrup thus assumes a tri-zonal area of special physiological activity. Under a one-half inch objective this proliferating base presents itself as a simple thickening, which from its trivial appearance has been universally ignored, or probably regarded as an accidental condition dependent upon manipulation. A point to be noted is that when the adult tooth shall have been developed, the base of the stirrup, described as the tri-zonal area, will constitute its covering *from apex to neck.* An older section enabled a more clear tracing of the facts presented to be effected. The changes manifested were the mesoblastic formation of the apex of the bulb, beginning to indent the base of the stirrup; the cen-

tral cells derived from the superior zone of the original mucous membrane or epiblastic covering, and their development into the reticulum, which is claimed to be the enamel organ, or at least its secreting element. The inferior zone is especially developed, and will be the structure immediately super-imposed upon the dentinal bulb in the adult tooth; its cellular quantity is more appreciable at the apex, and diminishes progressively to the point which will be the neck of the tooth. The middle zone is of uniform thickness, no deeper at the apex than at the neck. The superior zone is not particularly developed, and is simply distributed over the apex, being a little deeper at the latter point. The processes continuing are the development of the dentinal bulb, which pushes up the base of the stirrup, separating the reticulum into the lateral lobes, crescentic in contour, and applied to each side of the tooth from apex to base, and the appearance of blood vessels which permeate the dentinal bulb in great number. These vessels reach the extreme limits of the bulb, and serve as tributaries to convey pabulum to this component element of the future tooth. The tri-zonal base has also undergone marked change, and notably the inferior zone. The superior zone is simply, as before, spread over the surface of the middle zone. The latter is now a genuine columnar layer of epithelium, of uniform thickness from apex to cervix, while the inferior zone is thickest at the apex, and thinnest at the cervix. At the peripheral border of the dentinal bulb, where in earlier sections rounded cells existed, there are now developed elongated cells, which possess polar prolongations entering into the area which will be occupied by future dentine. Prior to the development of blood vessels in the bulb there was no trace of enamel, dentine, or odontoblasts, but simply an arrangement of the cells into their respective positions, where they could most effectively elaborate the morphological functions with which they were endowed. The next diagram exhibited, amongst other points, the fact that *at the apex where the enamel is developed the greatest, the reticulum is least.* The significance of this is of twofold force, when the fact is recalled that this point will very soon penetrate the reticulum, and that the enamel at this time is *not* formed, but only beginning, and is completed at a future time, *i. e.*, when the reticulum will have been situated near the base or root portion of the follicle. If the reticulum secretes enamel salts, how can enamel develop at a portion of

the tooth remote from that reticulum, and why is the root of the tooth not covered with enamel also? Or, in other words, if this middle zone constitutes the ameloblasts, and elaborates the enamel from the material supplied by a secretive function of the reticulum, why is not enamel formed or deposited at that portion of the dentine which will later develop and constitute the root, especially as the ameloblastic layer and reticulum occupy a position in immediate juxtaposition to the root.

A study of an older slide disclosed the fact that the inferior portion of the tri-zonal base, now decidedly developed, *ceases to exist at the neck of the tooth*, which endorses the significance of the previous remark, that the inferior zone extended from apex to cervix dentis *only*, and explains the necessity for a careful study and tracing of the tri-zonal area.

The next diagram represented a section taken from an eight months' human fœtus, and showed the reticulum occupying a basal position close to the root, not having kept pace with the development of the tooth. As the root develops and pushes the body of the tooth upward, the reticulum will occupy the position of the root and *form the cementum.* The inferior zone is now seen as well developed enamel, its apical development and steadily diminishing thickness until the point of cessation at the cervix dentis, being conspicuous. The so-called ameloblastic layer appears as a single uniform line of columnar cells, extending well *below* the point at which enamel ceases to exist.

From this study the theory regarding tooth development, and especially the formation of enamel, may be formulated as follows, viz.: Teeth evolve from the epiblast and mesoblast; the enamel and cementum are derivatives of the epiblast, the dentine of the mesoblast. Enamel is evolved from the inferior zone of the tri-zonal base described. The inferior zone receives its material for elaboration from the pulp, by means of the polar prolongations of the odontoblasts, which traverse the dentinal tubules and are in direct apposition to, and in many instances continuous with, the enamel rods.

After the reading of the paper, discussion of the subject was invited, but before doing so it was suggested that an adjournment take place to examine the sections under the microscope. On reassembling, remarks *pro* or *con* were again asked for, Dr. Beates having during the interval exhibited his specimens and further ex-

plained the theories advanced. But either from modesty, or inability to cope with a subject at present engaging the attention of the leading men of the profession, and occupying much space in all dental journals, the subject failed to elicit argumentative remark from anyone present, although points had been evolved directly antagonistic to the theories held and taught in our dental schools.

In proposing a vote of thanks, Dr. Tees remarked upon the great indebtedness of the dental profession to Dr. Beates, for presenting the subject in the manner he had, especially as the study was one which did not come under his immediate professional attention.

Professor Guilford endorsed this remark, and stated that the Society was much interested in the paper, but their meetings were usually occupied with practical subjects, and the points advanced, being purely theoretical, accounted in a measure for the absence of discussion by the members present. The subject was a comparatively new one, consequently they were not familiar with it.

Professor Truman wished to correct this statement. He believed this subject had been brought forward many years since by the elder Tomes, and had been before the profession ever since, agitated by Magitot, Dean, Flower, Williams and others.

THE USE OF COCAINE BY HYPODERMIC INJECTION FOR EXTRACTION OF TEETH.

BY D. W. BARKER, M. D. S., BROOKLYN, N. Y.

The results of the use of Cocaine in dental practice would seem to indicate that its principal usefulness is to be found in surgical, rather than operative work; that its great power of temporarily suspending the sensation of pain is especially useful in that most painful operation which our patients undergo at our hands—the extraction of teeth. The injection of the solution over the track of the inferior dental nerve was a partial failure, because the drug is not diffusive in its operation, but decidedly local. Bathing the solution on the gum may produce a superficial insensibility, but the pain caused by extracting a tooth comes from a deeper source; hence the necessity for getting the agent deeply into the tissues. In the majority of cases, complete insensibility to the pain of extraction may be produced by injecting, with an ordinary hypoder-

mic syringe, five drops of a four per cent solution under the gum, directly over the root of the tooth to be extracted. It will take from five to eight or nine minutes to get the full anæsthetic effect of the Cocaine. Pricking the gum to test its insensibility will indicate when to extract. The extent of insensibility is limited to a small space around the place of injection, and the effect lasts from ten to fifteen minutes, and then passes away.

An important fact to be kept in mind is that the agent is injected directly into the circulation of the patient; hence the drug and its solution should be the purest possible, and the instrument absolutely clean. In order that the solution may be of the best, it should be made of distilled water; all ordinary water contains some organic matter, and a solution made of it will sour in about a week, and become not only unfit for use, but positively dangerous. If distilled water cannot be obtained, then ordinary water that has been boiled may be employed, but a solution made from it should not be used if it has been made for more than a week. Of the various manufactures of Cocaine I prefer that made by Dr. Squibb, of Brooklyn, because of its absolute purity; the crystals are pure white, and the solution colorless.

Extreme care should be taken to keep the syringe and its point absolutely clean, and it should never be used for any other purpose; each time, after it is used, it should be cleaned and dried, by drawing a small quantity of alcohol through it. In making the injection care must be taken to inject no air into the tissues; this may be avoided by drawing some of the solution into the syringe, then turning the point upward and expelling the liquid; any air in the syringe will go out first; then fill the syringe as full as required. To avoid running the point against the edge of the alveolus, and also to avoid the thick and somewhat tough margin of the gum, let the point enter the gum an eighth of an inch from the margin, and, following the surface of the bone, pass in at least three-eighths of an inch; if the beveled side of the point is held next the bone, it will avoid sticking against it. Press on the piston rod gently and slowly, so as to expel the liquid a drop at a time; inject half of the five drops on one side (buccal or labial) of the tooth, and the remaining half on the other (palatine or lingual) side; hold the syringe point still for half a minute, and then withdraw it slowly, so that the liquid may be taken up by the tissues and not spurt back when the point

is withdrawn. For molars, injection may best be made horizontally, instead of vertically. If there are two or three roots standing close together, the injection should be made midway between them. The power of feeling is not wholly suspended, for the patient can feel the lance pass around a root, and feel the tooth leave the socket, but cannot feel the pain. Teeth which have live pulps, when leaving the socket, sometimes produce a sharper sensation than those without, caused probably when the nerve is severed at the apical foramen; but this feeling is seldom described by the patient as pain; by some it is said to be like the twinge felt when one's foot gets "asleep," and some deny feeling it at all. If pain is felt, it will probably be because the operator has not waited long enough after injecting the Cocaine, or he has not made the application properly.

I have been asked if the injection itself does not cause pain. If the gum is first bathed with the solution and the syringe needle is kept very sharp, there need be little cause for complaint. The wound always heals kindly and quickly, and there is never any swelling or pain, or any sign of local inflammation or systemic disturbance; the place where the injection is made causes no trouble, but heals with the rest of the wound, and all sign of it disappears.

DENTAL HYGIENE.

BY G. L. CURTIS, D. D. S.

READ AT A UNION MEETING OF THE FIFTH AND SIXTH DISTRICT DENTAL SOCIETIES.

As is well known, a judiciously applied stopping will arrest decay and save a tooth for years of usefulness to its owner, but a course of treatment that will effectually prevent the first appearance of decay is as yet almost unknown, or at least unheeded, in our profession.

Constitution, health, nutrition, or habits of living, all bear so directly upon the teeth and their construction, that in this age of so-called civilization, with its artificial means of living, the dental organs have degenerated, until they seem almost beyond the reach of remedial agents. Local treatment, however, and constant care in daily life, will accomplish much.

Cleanliness, which is indispensable, and is certainly the most important remedy in preventing disintegration of the teeth, stands first, and the dentist cannot too earnestly impress upon the minds of his patients the importance of this great fact. Neglect this, and the advantages of good inheritance, natural strength, and the most skillful treatment, are all jeopardized.

The dentist should strongly urge the use of the brush after each meal, and before retiring, teaching the patient how to use it so as to get the upward and downward motion that enables the bristles to pass between the teeth and remove all deposits of food and calcareous deposits, and at the same time polish the approximating surfaces, instead of the lateral motion more commonly practiced, in which the labial surfaces only can be reached. Many would be benefited by having a proper brush selected for them, and should be instructed as to what dentifrice is not injurious.

The importance of the use of the quill pick, and of the floss silk, are second only to that of the brush, and for the purpose for which it is used the common quill pick is the best. The significance of all this, and the great importance of keeping the teeth clean, should be impressed upon the minds of children as well as of adults, and with all the earnestness possible. With ænemic and delicate persons it is often necessary to resort to general treatment. In prescribing medicine, which by direct contact would be injurious to the teeth, due care should be exercised, as we too often see the effect resulting from neglect in this particular, on the part of physicians. Alkaline washes are very beneficial in systems where the saliva is rendered acid in its reaction, and should be freely used. Our attention is often called to one or more teeth which yield readily to the secretions of the mouth, and become so sensitive that pain is produced whenever an attempt is made to brush them. In such cases lime water, bicarbonate of soda, or precipitated chalk, is useful. The latter should be placed around the teeth on retiring, and allowed to remain till morning.

To strike at the root of our subject, education is first essential, and every mother should be cognizant of the necessity of giving herself the proper care during gestation, and of taking the requisite amount of exercise and suitable food to develop the bone tissue of her child. This, too, is particularly important during the period of lactation, and the development of the permanent teeth.

In conclusion, we believe it is to the children and their teeth that we should direct our chief attention, and that in the carrying out of the best treatment known to us, together with what suggestions we may be able to get from those around us, lies our greatest success.

OBTURATORS AND ARTIFICIAL VELA.

BY N. W. KINGSLEY, D. D. S.

An article in the May number of the INDEPENDENT PRACTITIONER, on "Obturators," written by a young man who has just graduated at the New York College of Dentistry, contains errors which, unless corrected immediately, may obtain some credence for want of denial.

On page 244 he says: "Dr. Kingsley, at the meeting of the First District Dental Society for February, 1885, remarked that no one could construct an obturator for a patient with a congenital cleft, in which articulation was noticeably improved during the first month's wear."

I said nothing of the kind. What I did say was that "no one could construct an apparatus for a congenital cleft which would restore perfect articulation *immediately*." (Vide report of that meeting in *Cosmos* for April, page 227.)

The aim of Dr. Weber's article is to make it appear that an obturator is applicable in *all* cases of congenital cleft, and that with an obturator a patient can *always* acquire articulation as quickly as with any other kind of an appliance. Such an assumption as this, by a young man who has never seen artificial vela put to a test in comparison with obturators, is simply amazing. My own experience has extended over a quarter of a century, with all kinds of appliances, and for hundreds of patients, and I reiterate the quotation from my writings, made by Dr. Weber at the head of page 244, with the added force of additional years of experience.

Obturators can certainly be used in some cases, with reasonable expectation that the patient will derive the desired benefit as soon as with any other instrument; but such cases are only those where, from habit or otherwise, there is already great activity of the pharyngeal muscles in the effort to articulate. In many instances, these

muscles in that effort seem quite dormant, and for these latter cases artificial *vela* are at present the only known remedy.

Dr. Weber would intimate that all of Suersen's patients had acquired articulation by that means, and yet a little over a year ago there came into my hands a young lady who had worn one of Suersen's obturators for several years (made by himself), whose articulation had not been benefited. I made for her an artificial velum, in January, 1884. I have seen her within two months, and her speech is now perfect. She is now in condition to illustrate the second paragraph quoted by Dr. Weber on page 244, viz.: "That a soft, elastic, artificial velum is much better adapted to the acquirement of articulation than one of an unyielding, non-elastic substance, *but when acquired* an obturator may be substituted." The philosophy of this statement is very simple. All experience shows that a patient whose speech has been perfect, and who has lost it by an acquired lesion of the palate, will have that speech instantly restored by almost any very simple form of an obturator. The former faculty of speech returns immediately after the lesion is closed. Congenitally cleft patients, having acquired the faculty of distinct articulation with an artificial velum, can continue to exercise that faculty with a properly adjusted obturator.

DENTAL SUGGESTIONS.

BY DR. JOHN D. WINGATE, CARBONDALE, PA.

AMALGAM.

Is there not some danger that our younger brethren, who are ardent pursuers of the best modes of serving their patrons, may fall into grievous errors from the writings and sayings of some of our distinguished lights in the profession? Among the noted errors taught is that of using homœopathic quantities of mercury in the preparation of amalgam. There is a proper quantity to form a perfect combination of the material, and less gives a brittle, pasty stuff, unfit to remain in the mouth. A properly prepared amalgam filling, in a well prepared cavity, will preserve that part of the tooth.

PLASTIC FILLINGS.

The market at present is groaning under a plethora of plastic filling material, much of which is only a fraud, and it should be our

duty to freeze out the worthless preparations. High sounding names and questionable recommendations do not change the worthless into good.

TESTING FILLINGS.

A practitioner who wears a rubber or a celluloid plate has one advantage over those who have only natural teeth. Cavities may be drilled into the plates, and fillings tested. Two classes of cavities may be made; one where friction will act on the fillings, and another not exposed to friction, but where the fluids of the mouth may act as solvents. The old and the new may then be tested side by side, and the most eccentric conditions complied with.

REFITTING LOWER PLATES.

When absorption has spoiled the fit or injured the articulation, the old plate may be filled with plaster of paris, prepared as for taking an impression, and carried to its place, directing the patient to close the upper teeth upon it. This gives the impression and the "bite" at the same time. Then the cast may be made and connected with the lower part of the articulating model, while the upper part may have half the crowns of the teeth inserted into its part of the plaster. In this way the bite is retained, no matter how much it may be lengthened.

ANNEALING GOLD FOIL.

Much time is lost by passing the gold, during filling, through the flame. A piece of Russia sheet-iron, six inches square, will serve a good purpose. The gold, properly prepared, may be spread on this and placed on any heating apparatus. The heat need not exceed 700 degrees, or the melting point of lead, and it may frequently be repeated at that point and still work well.

COMPREHENSIVE DEGREES.

BY C. E. H. PHILLIPS, D. D. S., NEW YORK.

Throughout the world the degree of M. D. affixed to a name immediately conveys the understanding that its possessor is a doctor of medicine. There being but the one degree, it cannot be mistaken.

How very different is it with the practitioner of dentistry. Four neighbors may, side by side, practice this specialty, and each en-

deavor by a different degree to acquaint the laity with his calling. Is it then to be wondered at if the public eye is sorely puzzled in scanning such titles as D. D. S., M. D. S., L. D. S. and D. M. D., each indicating the possessor to be a practitioner of dentistry?

If a higher standard is represented by any one of these four degrees, would it not be well for colleges and State examining boards to insist upon meeting all requirements, and confer only that one degree, thus obviating perplexity and misunderstanding? The degree of dentistry should be as comprehensive to the general public as that of medicine.

Reports of Society Meetings.

SOUTHERN DENTAL ASSOCIATION.

SEVENTEENTH ANNUAL MEETING, AT NEW ORLEANS.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY MRS. M. W. J.

(Continued from page 265.)

SECOND DAY—MORNING SESSION.

Convened with B. H. Catching, Third Vice-President, in the chair.

The death of Dr. S. M. Prothro, of Chattanooga, was announced, and a committee appointed to frame memorial resolutions.

Dr. W. N. Morrison read a paper on Operative Dentistry, his subject being the too frequent reckless sacrifice of tooth material in opening dead teeth, for convenience of operating. Being liable to disintegration, they require the strongest walls. For root filling he uses very soft, pure gold wire, the exact size of the natural canal, never drilling or enlarging the latter. He fills the interstices with oxy-phosphate of zinc, or gutta percha, introduced with a tampon of bibulous paper to absorb the surplus fluid. He removes the contents of the canals and the pulp-chamber through a round aperture in the center of the crown, one-sixteenth of an inch in diameter. He described at length a tooth having a nodule in the pulp-chamber, too large to pass through the aperture. He rolled the nodule from side to side while extracting the pulp tissues and filling the roots, finally impacting it in the filling of the

pulp-chamber. He devitalized the pulp with arsenic, removed, disinfected, and filled at one sitting.

A spirited discussion followed. Drs. Knapp and Morgan pronounced Dr. Morrison's position extreme, though assenting to the general principles laid down. Dr. Knapp would rather drill and operate through a mesial filling, than drill through the center of a sound crown. Dr. Morgan would prefer a slot, however narrow, to a round opening. He believed that immediately after the removal of a dead pulp was the worst time and worst condition for filling. The contents of the tubuli would decompose, the tooth would discolor, and mephitic gases might induce an abscess. He would cut away the dentine freely, because of the decomposition of the contents of the tubuli. He uses wire for root fillings, but with screw threads. Has found a case in which a root had been filled with oxy-chloride of zinc, and a ball of the material had been forced through the foramen.

Dr. Parmly Brown—Would not advise every one to try Dr. Morrison's opening. Where one would succeed ten would fail. He agreed with him as to immediate filling. He had successfully removed pulps, disinfected and filled, at one sitting, ten anterior superior teeth, in which pulps had been devitalized but not removed, six months previous; the fillings were all loose, and pus was exuding.

Dr. Spalding—Said such treatment would not do for the teeth of young children, but as a general rule he would insert the fillings immediately, unless the tooth was very sore. In every case he would fill the channels as quickly as possible. External conditions, even an outside abscess, were no hindrance, for he would treat the apex from the outside. If the periosteum is inflamed it is because of mephitic gases in the canal. If that be cleaned and filled the cause is removed. The canal must be perfectly dry to prevent chemical changes. He uses wire and gutta percha in the canals; gets the exact measure of depth of the canal and cuts the wire off; then pumps the canal full of gutta percha and insets the wire to the same depth it went before. He thus becomes certain that it is well filled, in breadth and depth.

Dr. Harlan—If the pulp is destroyed to-day, according to the laws governing physiology, changes from physiological to pathological conditions will occur. Nature requires eight days to

remove eschar tissue. Mixed fluids entering will produce putrefaction. He extracts moisture, not with carbolic acid, not with creosote, but with absolute alcohol, which will not coagulate the tissues. It is not possible to perfectly fill curved roots with gold. We must use plastics to reach unequal surfaces. Oxy-phosphate and oxy-chloride of zinc harden before reaching the apex. He uses gutta percha, not heated in the flame or on a dish, not in cones, but drawn out fine, and sufficiently rigid to go to the apex.

Dr. Williams—Removes all tissues, disinfects thoroughly, and closes the apex with a lead cone, similar to the point of a lead pencil.

Dr. Richie—Is opposed to the capping of pulps, as an imposition on both patient and practitioner. The former will have neuralgia and a big bill with the physician; the latter will have the fillings to remove and replace. He takes the pulp out surgically, using local obtundents, then fills the canal for a week with antiseptics, finally filling the roots with Robinson's fibrous material, dissecting out and using long fibres, packed in one by one.

Dr. Walker—Close the foramen, seal the apex with what you choose—gold or lead, or whatever the case may require—and then fill the roots with gutta percha or oxy-chloride of zinc, packed in with cotton wrapped on a broach, bringing back the cotton and leaving the plastic material. Believes in preserving the nutrient functions as long as possible; would save the pulp; would cap and fill temporarily, and watch for a few days. If no trouble ensues he would then cut down the temporary filling and finish permanently. He unqualifiedly condemned wholesale devitalization because of fear of what might occur.

Dr. Robinson—If you will take a spring broach twice the size of a horse hair, and blunt the end upon an oil-stone, it will not go through your material. For thirty years he has taught that it is proper to extract no tooth unless it can be done with the unaided fingers. For capping exposed pulps the oxide of zinc may be mixed with carbolic acid to the consistency of cream, and then gently flowed over the exposed place. Upon this a suitable cap may be placed.

Dr. Chisholm — Still uses the old wood-creosote, or oil of cloves. Has capped exposed pulps that have remained alive and serviceable for fifteen years. There is only one secret in root fill-

ing—"close the door and lock it," no matter with what, so that it is done well. Has used spirits of turpentine on exposed pulps, with success.

Adjourned until 2.30 P. M.

SECOND DAY—AFTERNOON SESSION.

The subject of Operative Dentistry was continued.

Dr. Teague—Said there were two conditions requisite in capping pulps, an absence of pressure, and a non-conducting filling. His practice is to wash gently with carbolized water, and then flow creamy oxy-phosphate over the pulp, finishing with a good grade of amalgam. He cautions the patient against the pressure of mastication at first.

Dr. Reese—The surest test for impurities in the canal is permanganate of potash. When introduced into the canal, on cotton, it will turn brown if impurities remain. As to thermal changes, if the tooth is affected by cold only, there is no danger. If heat is painful there is inflammation, and the pulp is dead, or will die soon.

Dr. McKellops—Agrees with Dr. Morgan in cutting away dentine freely in dead teeth; otherwise the tooth will turn brown. He differs from Dr. Knapp as to opening. If the top is left intact, and the tooth filled from the side, we cannot see what is done. Neuralgia will follow filling around a calcified pulp; the branches in the roots will give excruciating pain. He can see no object in leaving a nodule, as described by Dr. Morrison. A nodule is foreign material, and should be removed. We often claim as successes what are really failures. We may not know of it, because our failures do not always come back to us; they are tired of us, and go somewhere else. In all ordinary cases of abscess he treats through the foramen, but if the canal be already filled, and there is a blind abscess, trouble cannot be avoided. He described several cases of failures, and exhibited the extracted teeth, with cotton, gold, and other materials projecting through the apex. For treatment and filling of nerve canals he uses a number 10 Swiss broach, which costs only four dollars per gross. Imbed the broach in unslacked lime, and heat to a red heat. This will make it exceedingly tough. For filling he winds such a broach with a few fibres of cotton, and carries gutta percha, dissolved in chloroform, to the apex. No man can fill a crooked nerve canal perfectly with gold, or with

wire. It will either project through, or come short of the apex. First-class work cannot be done in a hurry, and therefore he uses gutta percha, with which he can take all the time he desires. When necessary he separates with waxed tape; takes a week, and thus avoids soreness, and gets plenty of room. Is always ready to give any man any amount of money to be taught how to do things in the best manner. Sometimes gold work will fail. There are cases that can be saved only with oxy-phosphate fillings, frequently renewed. Uses

Mur. Cocaine, gr. 1½.
Spts. Alcohol, dr. 1.
Chloroform, dr. 1.

for local anæsthesia, with entire success.

Dr. C. W. Spalding—No man will honestly advocate what he does not know he can do successfully; but no one, in the papers or in the discussion, has claimed to fill roots with gold wire, and nothing else. The apex can be closed with gold, and then it makes little difference what you fill the canal with.

Dr. H. A. Smith—Desired to emphasize what Dr. Harlan had said about excluding foreign elements, and, with Dr. Parmly Brown, would "make haste slowly." When a tooth is in a pathological condition, infiltrated with septic matter, every time we apply an antiseptic we are making progress towards a cure. But we must maintain this progress until the end be reached. When a healthy condition is attained, unless complete isolation from septic influences be maintained, organic matter will enter, disorganize, and the whole work must be done over again.

Dr. Tuft—We must be guided by the condition of the dentine of each tooth. The dentine of young teeth contains much organic matter; it is not dense; septic emanations pass through readily to the periosteum. Operations successful in dense structure would not be tolerated in soft teeth. Some teeth discolor promptly; others resist for years. Different constitutions resist irritants differently. Some take up and eliminate poisons without disturbance; others have serious periosteal trouble upon the slightest occasion. Different methods of treatment are necessary in youth and age, in health and debility. We must study the histological character of structures, and use discrimination. The electric light gives invaluable aid in distinguishing characteristics of tooth adjuncts.

Dr. Morgan—Differs with Dr. Harlan as to success in removing the entire contents of the tubuli with alcohol; even though removed they will be renewed from the periosteum. We should use antiseptics to prevent decomposition and discoloration. It is impossible to save pulpless teeth in the negro; the tooth structure is too loose; there is too much organic matter; they are too like teeth of young children. To insure success in root-fillings it is necessary to drill the length of the canal with a cone-shaped bur, and you then know the length and breadth, and leave a cone-shaped opening at the apex. Then drive home a cone-shaped cylinder of gold, and you have the canal sealed. The cone-shaped bur forms the model for the cylinder. It is impossible to plug crooked roots with gold, and foretell the result. When an abscess has been treated, abnormal connective tissue is formed—eschar tissue—and this is less liable to inflammation than normal tissue. To prevent abscess, watch the case, and if soreness supervenes, apply aqua ammonia as a counter-irritant.

Dr. J. J. R. Patrick—The external surface of a root and the contour of the canal, will usually correspond in outline. Roots are sometimes club-shaped and contorted, but internal walls, as a rule, follow the external. I have seen a wire filling projecting beyond the apex one-half inch, and it was worn for years without trouble. As to fistulous openings, in accordance with the laws of gravitation lower teeth drain readily, and nothing is gained by waiting. Upper teeth drain through the canal; if filled, we must depend upon absorption to remove any deposits.

Dr. Morrison—The discussion has lasted too long already, but there are several points to which I desire to reply. Wire will not pass through the foramen if the right size is selected after trial. I doubt if Dr. Patrick will ever find a second case with wire one-half inch beyond the foramen. I will be glad to demonstrate my method, and prove its success. I am ready to give a clinic, either upon teeth in the mouth or imbedded in plaster so that I cannot see the roots, but I would prefer in the mouth. (Applause.)

Dr. T. T. Moore—Dr. Morrison may be able to withdraw the pulp through an aperture of one-sixteenth of an inch, but I would prefer to sacrifice a little more dentine.

On motion, the discussion was closed.

Dr. Williams read a paper, with large chart illustrations, de-

scribing his artificial crown, and the method of attachment, the latter based on mathematical and mechanical principles. The main points are a large sized but short pin of elliptical shape, conforming to that of the root (the crown consequently not liable to twist), and split at both ends to admit steel wedges, which, when driven home, expand both ends of the pin against the inside walls of the hour-glass-shaped pivot connecting the root and crown, drawing the two together and forcing out the surplus cement, which hardens while the patient bites it into perfect articulation. The wedging principle prevents all possibility of loosening; it is self-articulating, and can be inserted in one short sitting. It is apparently as permanent as the root itself. After some questions and explanations, the subject of Operative Dentistry was finally passed.

MICHIGAN STATE DENTAL ASSOCIATION.

Reported for the Independent Practitioner, by E. C. Moore, D. D. S.

(Concluded from page 269.)

Dr. Shattuck, of Detroit—It seems to me that if amalgam is such an atrocious filling, disastrous results would have been noticed before this time. It has been used for a good many years. I have practiced for twenty-five years and used it, and I have not observed any serious injury from it. I want statistics, and then if it can be shown that patients are being injured by it I will stop using it, but I require certain proof before I do that. I can see that amalgam may do some harm in young teeth of a loose structure; it might be carried into and destroy the pulp; but in teeth as we usually find them, and using amalgam in a careful manner, there is no more danger of destroying the pulp by using an amalgam filling than with any other metal. There is too great a tendency in the profession, or with some members of it, to attribute every dead tooth that has an amalgam filling to the amalgam itself. I want statistics.

Dr. Douglass—I have used Cocaine in operating about exposed pulps, and have found that the patients suffer little pain, sometimes none at all. I have used it on the gums before the application of the rubber dam, and have found that the patient felt no sensation of pain. I have also tried Cocaine in a number of cases, to prevent

pain from cutting sensitive dentine, but I cannot say that I have had any success with it in such cases.

Dr. Long, of Monroe—I cannot speak favorably of Cocaine. I have tried it, and have not been able to extract a pulp yet with decreased sensation. As far as extracting teeth is concerned, I have tried it in a number of cases and failed to get good results. I have injected it around the gum, and up under the gum, and I have waited five minutes, and fifteen minutes, without results.

Dr. Cowie, of Detroit—I have had some experience with Cocaine. Two or three days ago I applied a four per cent solution to an inflamed gum, very susceptible to the touch, where I wished to drill through the process to give vent. I allowed the Cocaine to remain for five minutes, and then went through the gum and process with my drill, and there was no pain. I have also had some experience in removing pulps, where I applied the same solution of Cocaine, and there appeared to be very little, if any, pain, but I have had no success whatever with Cocaine in the extraction of teeth; the pain of extraction was not reduced at all.

Dr. Moore, of Detroit—I have not had any good results from Cocaine. I have used it in various solutions, with the teeth dry, and with them wet, with and without the rubber dam, and in teeth with the pulps in all degrees of inflammation, exposure and disease, and the only result that I have noticed is that they seem to be more sensitive than before. I have used it for from five minutes to an hour and a half, with the same result. I have applied it to sensitive dentine, and to exposed pulps, and to teeth where a part of the pulp had been removed while a portion was yet alive in the root further down. I have tried it in every way, and so far without any satisfactory effects. It may be that the Glover preparation is better than the others. I will give it a trial.

Dr. Clawson, of Detroit—I have tried Cocaine without any good effects, but I have been able to get good results from a strong alkali mixed with carbolic acid. I am satisfied that the preparation of Dr. Robinson, of equal parts caustic potash and carbolic acid, will prove one of the best things for sensitive dentine that we have had. I have hitherto used a somewhat different preparation; mine is not the caustic potash, but simply the carbonate, but I can readily see that the caustic would be better than the carbonate, when mixed with carbolic acid.

Dr. Harroun—We are a body of experimenters, as a society, and have been at it for a great many years. The rapid strides that the profession has made for fifty years, show a great deal of progress, and we will, by and by, accomplish much in this direction, in addition to what we have already done. Naturally, we make mistakes. I thought Cocaine was just what the profession needed, but it does not benumb the pulp, and so far is a failure; but the gums, immediately around the teeth in which it is used, will be so benumbed that we may be able to use an instrument sufficiently sharp to burnish gutta-percha, without causing any pain whatever, but the moment the pulp is touched intense pain is caused. As to the Robinson remedy that has been mentioned, it is not as good when first prepared as after it has stood a few days. It can be applied to an exposed pulp without injuring it a particle. I do not fill a tooth without putting that in. It causes a sharp pain at first, but that soon passes away, and the patients are willing to submit to a short pain if the excavation and operation can be carried on painlessly afterwards. It coagulates the albumen of the tubuli, and the tooth is in better condition for filling. In applying these things a great deal depends upon the patient. The tissues of one will absorb a remedy, while those of another will resist it. These differences in patients must be taken into account. I have used the Robinson remedy for Pyorrhœa, with success, but Pyorrhœa cannot be cured unless the teeth are first thoroughly cleaned. The granulations of tartar must be removed, and then when the Robinson remedy is applied it acts as a cauterant; it contracts the pocket around the tooth, and from one to four applications will effect a cure. I apply it on floss cotton, poking a little of it down with an instrument. I have had fair success with Dr. Harlan's method, but nothing compared with that which I have had with the Robinson remedy.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

SEVENTEENTH ANNUAL MEETING, HELD AT ALBANY, MAY, 1885.

The Dental Society of the State of New York convened for its seventeenth annual meeting at Agricultural Hall, in the State Geological Building, at Albany, on May 13th, 1885.

The regular annual meeting of the Board of State Censors, for the examination of candidates, had been held on the day preceding. Twelve had presented themselves for examination, of whom three were recommended to the Society for its diploma.

A large number of permanent and delegate members were present, with a number of visitors, among whom was W. H. Waite, D. D. S., of Liverpool, Eng., an honorary member of the society.

After the usual routine business, and the presentation of reports from each of the eight District Societies, and the Colleges of the the State, the President, Dr. L. S. Straw, delivered his annual address.

The Corresponding Secretary, Dr. W. H. Atkinson, then read his report, which was objected to by some of the members, as possessing more of the character of an essay than a report. In reply, the doctor stated that he had communicated with various societies and members of societies, and that the replies received touched more upon local matters than upon scientific subjects, and that he had prepared this paper in place of a "report."

It was moved and carried that his verbal answer be incorporated as the report, and the paper referred to the publication committee.

The degree of Master of Dental Surgery was conferred upon the following gentlemen, whom the Censors reported as having passed a satisfactory examination:

Charles F. Ives, New York; B. A. R. Ottolenguin, Brooklyn; E. Judson Taylor, Syracuse.

Other routine business then followed, after which the Committee on Codification of the Dental Laws reported through its chairman, Dr. N. W. Kingsley.

This report was the subject of much discussion, several of the members being of the opinion that the old laws should remain as they were, and that only such as were new should be adopted by the Society.

Dr. Kingsley stated that the object of codification was to bring all the laws of the Society into a convenient form. That, previous to this, they had existed as by-laws, standing resolutions, etc., and that if the old laws were left and the new portions adopted, it would practically defeat the object for which the committee had been appointed, and to the furtherance of which they had devoted much time and labor.

Dr. Barrett moved the adoption of the report, except the appendix, and subsequently desired to add to his motion that the report be referred back to the committee, with instructions to also prepare a digest of the dental laws of the State.

Upon a division of the question the latter part of Dr. Barrett's motion was lost, and the original motion, for the adoption of the report, except the appendix, was carried.

After further routine business the Society took a recess till 3.30 P. M.

AFTERNOON SESSION.

The President called the meeting to order, and after the minutes of the morning session were read the privileges of the floor were, upon motion of Dr. Kingsley, extended to all gentlemen present who were connected with dental colleges, and to all visiting dentists.

Routine business was then proceeded with, after which "Incidents of Office Practice" was called up:

Dr. Jarvie—I have a case that I would like to present to the attention of the Society. A gentleman, in August last, fell and broke the point off the upper superior central incisor, and was very averse to having it built up with gold. He preferred to have the tooth remain as it was, rather than have it disfigured with a lump of gold. He was about thirty-five years of age. I ground a piece of porcelain, as like the tooth in color as I could select, and had a hole drilled in it as large as it would permit, without danger of fracture, and a corresponding hole made in the natural tooth, and cemented it on. The model is here, showing the natural teeth before I did anything, and a model as I took it on Saturday. I performed the operation, I think, last September, and they are together to-day.

In response to questions, the doctor stated that the pulps were alive, and that the cement he used was oxy-phosphate of zinc.

Dr. Frank Abbott—I recently had a similar case, a lower incisor. The difficulty in proceeding as did Dr. Jarvie, was that the tooth was dead. I took a piece of a porcelain tooth, the color that I wanted, and had it ground carefully to fit the tooth, so that the joint would be almost absolute, carefully preserving the platinum pins in the center. This I backed up with gold, laying the gold down behind and over the capping, and over the end of the tooth, and from that a piece of wire was carried into the root of the tooth,

to hold it, in the way Dr. Jarvie speaks of, except that I ground off the tooth where the points were, and put gold behind. I have put pieces on in that way several times.

Dr. Rich—Do such teeth stand well and permanently?

Dr. Abbott—The first one that I ever fixed in this way was about fifteen years ago. After six or eight months the young man went to Europe, and I have never seen him since. I have never had good success in capping with pieces of teeth in the way of which Dr. Jarvie speaks, unless the piece was very large. They do not stand as a piece will that has a metal backing, and the patient can bite upon the metal. I have gone so far as to take a piece of platinum and fit it over the end of a tooth as perfectly as I could, and then bake a regular enamel upon it.

The best success I have ever had in work of this kind, was by driving a piece of dry hickory wood into a hole drilled in the tooth, and into this driving a piece of gold wire. Upon this can be built a cement that shall restore the appearance of the tooth.

Dr. Jarvie—There is another case that I wish to report, on account of what at the time seemed a little peculiar. A boy, about ten years of age, fell on the ice and knocked out the two superior incisors. They remained in the yard for some time, were then found and brought into the house. The outer plate of the alveolus was broken, the teeth themselves broken, the cutting edges broken. I ground the crowns of the teeth into shape, and cut off the extreme end of the root. I removed the pulps and filled the roots with oxychloride of zinc and gutta percha. Before putting them back, an impression was taken and a plate made, covering the first permanent and the temporary molars, and the teeth were put back into place, the plate holding them so firmly in position that no motion was perceptible. The teeth became so firmly fixed in place that you could not produce the slightest movement, as though a union had taken place between the socket and the root. The lateral incisors had considerable movement upon pressure, the periosteum yielding to pressure upon it, but with the centrals there seemed to be no movement whatever. I sent the boy to Dr. Mirick and to Dr. Hill, so that the case could be fully verified.

Dr. Mirick—I can corroborate all that Dr. Jarvie has said about these teeth. The success was all that any one could have wished, and the teeth were firmer than I would expect in a boy of that age.

Dr. Jarvie wished me to see if there was any osseous deposit. I think the pressure of the alveolus bound the teeth firmly in the sockets.

There may be some gentleman here who was present at a meeting and dinner of the Second District Dental Society, about fifteen years ago. At that meeting I presented a patient who had a tooth knocked out in Wall Street, a young man of about twenty years of age. He had scraped the tooth and made it perfectly clean. He met with the accident about four in the afternoon, and about nine in the evening he presented himself to me, and I returned it to the socket and tied it with ligatures. That tooth became so firm that at this meeting, where I had him on exhibition, no one was able to detect which tooth had been removed. Every one selected the other tooth. The one I had put back was the firmest, and no difference in color could be detected. Within the last year a relative of this young man told me that the tooth had dropped out, as he expressed it.

Dr. Rhein—A young lady presented herself to me, one of whose central incisors had been knocked out and was hanging from the mouth by a shred of the tissue. It was replaced, and when examined two months ago, by aid of the electric light, the pulp was alive. It was as firm as the other, although the accident occurred in 1876 or 1877.

He also referred to the case of his brother, who had knocked out two central incisors playing base ball. They were carefully removed and filled, and the extreme point of the root removed, when they were replaced. The result was very similar to the case reported by Dr. Mirick, for about two years ago they both fell out, although for three or four years they were very firm.

The resolution passed last year, requesting the Baltimore College of Dental Surgery to show cause why its name should not be stricken from the list of colleges recognized by the Dental Society of the State of New York, for alleged irregular granting of degrees, was called up, when Prof. R. B. Winder, the Dean, appeared in answer. He said that it was very embarrassing for him to appear before the Society, because no formal charges had been made. The College had simply been cited to appear and show cause why its name should not be stricken from the list of colleges recognized by this Society. He thought great injustice had been

done the College, because it had been pilloried for a year, with no chance to make reply. It had been reproached as being under the ban of the Society of the State of New York, when nothing but *ex parte* proceedings had been held. He might plead many things, but he would not affect ignorance of the objections raised. By its charter the College was bound to recognize merit wherever it met it. He himself believed in granting diplomas by merit, and not according to any fanciful or arbitrary standard of time. The Baltimore College has always granted degrees at the close of a successful examination, no matter whether the student had attended lectures or not. That has been the custom of the school for a period at least thirty years longer than the whole age of this Society. It is a regulation included in its charter. To-day, if any man who has been in practice for ten years should present himself and demand an examination, they could not refuse him. They had consulted counsel, and had been told that, as this was in their charter, they could not avoid granting degrees in such cases, in any other way than by raising the standard of graduation quite out of reach. Certainly it was a principle that was amply sustained by the Dental Society of the State of New York, for he had that day witnessed the conferring of a degree by its President, upon a mere examination by the Board of State Censors.

In 1881 Prof. Taft called a convention of the Deans of the Colleges at Niagara, and a National Association was formed, and it was agreed not to recognize the diploma of any school that did not demand attendance upon two full courses of lectures, as an essential to graduation. Baltimore opposed this, because they did not believe that the time qualification was the proper one upon which to issue diplomas. But we could not afford to have our diplomas tabooed. No school can afford to be placed in the position of having its honors dishonored. Besides, I for one believe in submitting to the decision of the majority. The late war taught me that, and so we have signed the agreement, and henceforth shall be bound by the rules of the National Board. I told the gentlemen composing the Board that I did not believe in the graduation of students by the time plan, regardless of merit, but as I was the only one present who advocated other views, and as I did not desire to be an obstructionist, we would abide by the decision of the majority, and the College has done as it pledged itself to do. There will be another

meeting this summer, at Chicago, and at that meeting definite plans for the future will be presented.

Dr. Barrett—Said that he had advocated the resolution of this Society, passed a year ago, but he had not done it in hostility to the Baltimore, or any other special school. He could now see that an injury had been done the Baltimore College, but it was one that was not intended, nor recognized at the time. The wrong was in giving it no chance to make reply until a year had passed. Every accused person or institution has the right to a speedy trial, and when charges were allowed to be bandied about for a year, to the prejudice of a school, without its having an opportunity to make reply, it was an injustice which he was sorry had been committed.

But this was a question of principles, and not men. Degrees had been loosely granted by more than one American college, and as a consequence American dentistry, and American schools, and the distinctive American degree, had been brought to open shame. England had practically closed her doors against our degree. Germany refused to acknowledge it. France was moving to shut out American dentists, and even Switzerland was legislating against it. Whereas, once the name of American dentist and graduate of an American dental college was the proudest title that one could bear, and was a distinction sought by all the world, to-day we saw the D. D. S. virtually disestablished in Europe, and in some cases made even a term of reproach. And all this had been brought about—not by the profession in America—but by the American colleges themselves. American dentists had felt the blush of shame mount their cheeks, when they were constantly reminded that the degree of D. D. S., the distinctive mark of an American dentist, had been openly hawked about Europe *for sale.* The diplomas of the Wisconsin Dental College were offered, even in this country, to any one who would pay for them. And Wisconsin was a regularly chartered school, that conferred degrees "by merit," and not upon any time basis. This was the plea—that of recognizing merit—under which all the diploma rascality of America, whether in medical or dental colleges, had been committed. The plea was a very plausible one, but it could be easily seen how it might be, and was, abused.

But it was not the Wisconsin College alone that was the offender. Reputable colleges had engaged in the business of conferring diplomas upon foreign students, after an attendance that was but a

mere farce and sham; upon students who were not even acquainted with the English language, and hence could not comprehend the few lectures that they did attend. Seeing these things, the Dental Society of the State of New York thought it was time that it should put forth the power granted it by the Legislature, and call the colleges to an account, as they were accountable to no other power. Hence the passage of this resolution, which requested the Baltimore College to show cause. He regretted that in so doing they should not have given opportunity for immediate answer, but he thought the action was called for. Now, as Baltimore had receded from the ground it had occupied, and would consider itself bound by the agreement of the National Board, he moved that the Dental Society of the State of New York express its entire confidence in the Baltimore Dental College.

Dr. N. W. Kingsley—Inquired if the mover desired to base the resolution upon the fact of the abandonment by the College of the plan of granting degrees upon a mere examination.

Dr. Barrett—Said that he did not wish to embody this in the resolution, although of course it was taken into consideration. He did not believe that the Dental Society of the State of New York would ever express its confidence in any college that granted its diplomas *in course*, without a regular and due attendance upon lectures, nor that it would sanction the conferring of degrees upon a mere examination. There was a difference of opinion among its members concerning the propriety of granting the degree of Master of Dental Surgery, but there was this much to be said for it: it was not a degree in course, and did not pretend to be proof that its possessor had pursued any prescribed curriculum of study. It was not a degree of the schools at all, nor did it pretend to be. It was the child of the late Dr. Amos Wescott, a well known teacher, and when he recommended it no one questioned its propriety, and so it was incorporated in the State law, and the State Society would stand by and support it until such time as we could harmoniously agree upon its abolishment. No member would become factional over it, but we would all act together for what we thought best. There were differences of opinion about the degree, but every one might rest assured that it would be supported loyally by every member, so long as it was a part of the law.

A number of amendments and substitutes were offered for Dr.

Barrett's motion, but all were voted down, and the original motion was finally put and carried.

Prof. Follett, of the Boston Dental College, presented the claims of that institution for recognition by the State Society, that its diplomas might be legalized in this State. He stated the only basis upon which degrees were granted, and read a recommendatory letter from Prof. Chandler, of the Harvard Dental School.

Upon motion the matter was referred to the Board of Censors, and they subsequently recommended that the name of the College be placed upon the list, which was accordingly done.

The committee upon the Whitney Memorial Prize Essay fund reported, recommending that the annual cash prize be awarded to Dr. W. H. Atkinson, for a paper entitled "The Reproduction of Tissue by Sponge Grafting."

On motion the Society adjourned until the evening session.

(TO BE CONTINUED.)

AMERICAN MEDICAL ASSOCIATION.

SECTION OF DENTAL AND ORAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY MRS. M. W. J.

The sessions of the American Medical Association for the year 1885, were held in the different halls of Tulane University, New Orleans, several sections also occupying rooms in Grunewald Hall, in the same square.

The section on Oral and Dental Surgery met in Grunewald Hall, at 3.30 P. M., Tuesday, April 28.

In the absence of Dr. W. W. Allport, Chicago, Ill., Chairman, and Dr. E. C. Briggs, Boston, Mass., Secretary, the meeting was called to order by Dr. John S. Marshall, who announced that the absence of Dr. Allport was due to the enforced order of his physician, as he was just recovering from protracted illness. To supply the vacancies, Jacob L. Williams, M. D., D. D. S., of Boston, Mass., was elected Chairman, and John S. Marshall, M. D., D. D. S., Chicago, Ill., Secretary. Among the members of the profession present were Dr. J. Mott Smith, Honolulu, Hawaiian Commissioner to the World's Exposition; Dr. A. E. Baldwin, Chicago; Oscar J. Coskery, M. D., Baltimore, and Drs. J. Knapp, G. J. Friedrichs,

J. R. Walker, and L. A. Thurber, of New Orleans. The local attendance was small, no notification having been given of the meetings of the Dental Section. An invitation was extended by the chair to local dentists to participate in the discussions, as guests of the American Medical Association.

The reading of the minutes of the last meeting was dispensed with, as they had already been published.

Dr. John S. Marshall then read a paper entitled "Cocaine in Dental Surgery." Hydrochlorate of Cocaine, like all new remedies which promise to mitigate the sufferings of mankind, was hailed with enthusiasm by the dental surgeon, on the record of its wondrous efficacy in Ophthalmology. It has, however, as a rule, proved a disappointment as an obtunder of sensitive dentine. Now that enthusiasm has waned, the wonderful effects at first attributed to it in this line, would appear rather the effect of imagination than clinical facts. New forms of cocaine, more recently introduced, seem to promise better results.

Dr. Marshall then proceeded to give the record of a series of cases treated—ten with the Hydrochlorate or Muriate, ten with the Oleate, and ten with the Citrate of Cocaine. The results were briefly as follows: The Hydrochlorate, or Muriate, proved to be almost valueless, and the two, four, ten, and twenty per cent solutions without any marked difference in value, perhaps because the dense tissues absorb so slowly that a sufficient quantity cannot be taken up.

In case No. 1, the result was so satisfactory that it was tried in nine successive cases, of which the details were given, with the following results :

1. Very satisfactory.
2. No diminution of sensitiveness.
3. Ditto.
4. Exceedingly painful.
5. No abatement.
6. Very slight diminution.
7. Considerable mitigation.
8. A little relief. Hot air blast gives still greater.
9. Hot air alone as beneficial as hot air and cocaine combined.
10. No perceptible benefit.

The next ten cases that presented, were treated with either the usual five per cent Oleate as found in the market, or the normal

Oleate, which is forty-eight to fifty per cent. The results were as follows:

1. After ten minutes, hurt very badly.

2. The gums lost all sensation; the tooth was sensitive, but not so much so as was anticipated.

3. Normal Oleate; no effect.

4. Ditto.

5. Ditto.

6. Five per cent, no effect; with hot air, a slight abatement; (the citrate was a perfect success.)

7. Five per cent; very slight effect.

8. (Band for artificial crown.) The gum was perfectly anæsthetized; no effect on dentine.

9. (Pyorrhœa.) Five per cent; the root was scraped with but little pain.

10. Tooth normally sensitive. Two applications diminished this somewhat, but only partially.

The next ten cases were treated with the Citrate of Cocaine, manufactured by Merck, and recommended by him as an obtundent of sensitive dentine. It was recommended in a letter published in the *Journal of the American Medical Association*, Dec. 20, 1884. None was to be obtained in this country, but McKesson & Robbins kindly prepared a sample. [$(C_{17}H_{21}NO_4)_2 \quad H_3C_6H_5O_7$.]

Mr. Thos. Whitfield, druggist, made it into pills of one-quarter grain each, using as an excipient gum tragacanth dissolved in glycerine. All debris was removed from the tooth, and the cavity was washed with tepid water. The rubber dam was then applied, and, dividing a pill into four parts, one or two pieces were placed in the cavity and covered with a pledget of cotton saturated with tepid water. This dissolves and spreads the remedy over the surface of the cavity. In five minutes a second application may be made, if necessary.

The following is the result of this treatment in ten successive cases :

1. After ten minutes, excavation was made without pain. The effect lasted one hour.

2. A perfect success.

3. The dentine was sensivive to heat and cold, also to acids or sweets. The least touch gave exquisite pain. The citrate was

painful for twenty minutes, but after a second and third application, excavation became endurable.

(I had before tried the twenty per cent muriate solution without effect.)

4. A complete success.

5. Hypersensitive; removed the decay without pain.

6. A failure. (I afterward succeeded with oil of cloves and one-eighth grain of morphia sulphate, in five minutes.)

7. One-sixteenth of a grain was used. There was severe pain after five minutes. The second application of one-sixteenth of a grain was effectual.

8. A perfect success.

9. But little pain.

10. One application completely obtunded sensitiveness.

I have had many severe cases since, and in nearly every instance it has proved all that could be desired. Whether the results are due to this special form, or to the greater concentration of the active principle, I do not know. It acts more promptly, and with greater efficacy, whether in sensitive dentine, on exposed pulps, or on mucous membrane, than either of the other forms. It causes more or less pain when applied, the effect being similar to that produced by bibulous paper or spunk, in a cavity, or to the use of chloride of zinc. The effect passes off in from two to five minutes. It is perhaps caused by the rapid absorption of fluids from the tubuli. Although there are some unaccountable cases of utter failure, this record strongly hints that the perfect local anæsthetic has been found at last.

The paper elicited a lengthy discussion, which was opened by Dr. G. J. Friedrichs, of New Orleans. Having been out of practice for over two months, owing to a serious accident, he had not tried the Citrate. He had entirely failed with the Muriate and the Oleate. He could not agree with Dr. Marshall as to the alleged cause of pain in its application. The object of the hot air blast was to absorb the moisture from the tubuli, and thus to *prevent* pain.

This was the object proposed in the use of absolute alcohol, or Naboli, (which is alcohol and tannic acid).

Dr. J. R. Walker, New Orleans—Has experimented only with a four per cent solution of the Muriate. The results have been variable. In some cases it has obtunded sensitiveness to a great de-

gree, so that patients have expressed the highest satisfaction. It is valuable also in lancing the gums previous to extraction, but the general results of his own experience, added to that of others, lead him to conclude that it is not what we need.

Dr. J. Mott Smith, Honolulu—A stranger here, I have listened to the remarks with great interest. If one thing is more especially desirable than another, it is a local anæsthetic which can be applied quickly, that shall render an operation easy, and prevent pain to the patient. From what he had seen of its effects on the eye, as used by a celebrated oculist in Albany, N. Y., he would expect Cocaine to be invaluable to the dentist. He had not heard its merits discussed before, as he had but recently arrived from the Sandwich Islands. He believes that the proper form for use in dental surgery will yet be found. Arsenic is a sure remedy for an exposed pulp, but it is too dangerous to place in inexperienced hands, or for use by the average dentist.

Dr. Baldwin, Chicago—Has only tried the Muriate, and his experience has been identical with that of Dr. Marshall. In one case, where the muriate had failed entirely, wishing to apply chloroform on a pledget of cotton, he accidentally got hold of the sulphuric ether bottle. He applied the cotton, saturated with ether, to the gum, where he supposed the end of the root of the superior left lateral incisor to be located. It was very painful at first, but after a few moments no more pain was experienced from the sensitive dentine. The patient did not know what had been applied, but there was certainly a lessened sensitiveness while excavating. In using arsenic, one one-hundredth grain is just as effectual as a grain, and a great deal safer. To neutralize the effects upon the soft tissues of any contact with an expressed surplus, I make an application of dialysed iron to the gum. The variation observed in the effects of Cocaine is perhaps due to different conditions in the circulatory and nervous system of the patient, rather than to the drug itself. If the pulp is in a sluggish, semi-devitalized condition, the result of chronic irritation, this application, or any other owing its effect to absorption and contact with neural structure, will be less effective than in a vigorous patient, or in healthy tissues. To judge of a series of experiments, we need information as to the condition both of the patient and of the tooth. I hope Cocaine will prove to be what we need.

Dr. Friedrichs—If a healthy pulp is exposed, it is not sensitive. In the case of a young boy, twelve years old, who fell and split a tooth, exposing the pulps completely, I touched it with my excavator repeatedly. It was not in the least painful, and yet it was fully exposed. There was no more feeling in it than in the gum. It is only when the pulp is irritated and diseased that it becomes painful. Then Cocaine should act. Into freely exposed, healthy pulps, you can drive a splinter of wood and cause no pain.

Dr. Williams—Have you seen many such cases?

Dr. Friedrichs—Yes, a great many. I often cut off the crown and expose the pulp, then drive in an orange-wood or hickory splinter, dipped in carbolic acid. It gives no pain, because there is no feeling in a freely exposed, healthy pulp. The results from Cocaine are variable, even in the same mouth. In one case I used the four per cent hydrochlorate in sensitive cavities on one side of the mouth, and excavated and filled without difficulty. On the opposite side of the same mouth, at the same time, under the same conditions, it produced no effect whatever. Why should it be a success on one side and not on the other?

Dr. Marshall—How old was your solution? Was there any fungus in it?

Dr. Friedrichs—I had it one week. It was procured from Keppler, but I do not know if he prepared it himself. We must remember that the action of Coaine is only local. In operations in the eye, where the affection is deep-seated, chloroform is still required. We must remember, too, that there is no mucous membrane in tooth structure.

Dr. Baldwin—I am very much surprised to hear that a healthy pulp is not sensitive; that we can drill into a tooth and cause no pain. I find it quite the contrary sometimes. I can remember several cases in which the pulp was very sensitive; in fact, I never knew of an instance in which it was otherwise. Dr. Friedrichs labors under a misapprehension. I intended to say that the application was effective or not, depending upon the condition of the nerve-tissue of the pulp, or the mucous membrane of the gum (not of the tooth). If there were no terminal nerve-fibres, we should have no sensitive dentine by communication with the pulp, not through the gum, but through the nerve-fibres in the canaliculi. The action of an obtundent is due to the destruction or diminution of the conductive power of nerve tissues.

Dr. Walker—I have never touched a live pulp without finding it highly sensitive, though it may be so benumbed or paralyzed by a sudden blow as to be insensible to pain at the time, and this was probably the case with the tooth of the boy cited by Dr. Friedrichs. A dead pulp, of course, is not sensitive, but I believe it is generally admitted that the live pulp of a tooth, when fully exposed in a cavity, whether accidentally or otherwise, is the most exquisitely sensitive structure in the human body. I feel greatly indebted to Dr. Marshall for the record of his experience with the Citrate of Cocaine, and shall take the earliest opportunity to try it.

Dr. L. A. Thurber, New Orleans—My experience with the Muriate of Cocaine is quite contrary to that of Dr. Friedrichs. I could not dispense with it in my office. I think failures are often due to allowing the cocaine to be washed away by the fluids of the mouth. A pledget of cotton, saturated with cocaine, is allowed to be freely washed in the fluids of the mouth, and the remedy is so diluted that it has no effect. I first apply the rubber dam, and then dry the cavity, and never fail of success where all fluids are excluded. It is valuable in extracting, when used hypodermically, but the application is painful, and it is also difficult to go through the foramen, which must be done to render it effective. In opening an abscess, or for the removal of a pulp where devitalization is absolutely necessary, it saves more pain than any other agent I have ever used.

Dr. Coskery, Baltimore—In a case of very severe pain for twelve hours, one single application of hydrochlorate was a perfect success.

Dr. Williams—Experiences with this, as with any other material, are variable. I have known cases in which chloric-ether was a perfect success, and others again where it had no effect.

The application of tannin is often very painful, and aqua-calcis will often relieve the pain. In fact, aqua-calcis itself often relieves sensitive dentine. The effect of either the two per cent., the four per cent., or the thirty per cent. muriate solution, varies in the same way.

Dr. J. R. Walker (to Dr. Marshall)—Did I understand that your success was greater in decalcified teeth?

Dr. Marshall—It would seem to vary with the density of the teeth. When the structure is very dense, the effect is less. I would like to ask Dr. Thurber if he uses only the hydrochlorate?

Dr. Thurber—That is the only form that I use. It is very important to keep the cavity perfectly dry.

Dr. Marshall—I have used it both with and without the rubber dam, in forty or fifty cases, but did not find that it affected the result. I have tried drying with spunk, and with the hot-air blast, but the hydrochlorate fails, with or without these adjuncts. Have failed utterly with two, four, ten and twenty per cent. solutions. I know my preparation was perfectly fresh and good when received, though in the course of three weeks a fungus growth will form, when it becomes perfectly valueless.

Dr. Baldwin—Alcohol or glycerine will preserve it.

Dr. Marshall—The oleate was not designed for the teeth. It is intended for use on external surfaces—to anæsthetize the surface of the body, where the hydrochlorate has no effect.

Dr. Thurber (to Dr. Marshall)—How long did you wait for the effect of the hydrochlorate?

Dr. Marshall—From ten minutes to an hour, before giving it up.

Dr. Thurber—Did you fail in very clean teeth?

Dr. Marshall—I failed in teeth of every character.

Dr. Thurber—It is successful every time, in my hands, and especially with children.

Dr. Marshall—Your experience is very different from mine. I will add that the citrate is a new form, prepared by Merck, and recommended by him for this purpose. McKesson & Robbins promise to keep it for us. It should be made up into pills of one-eighth gr. each, and each pill divided into two or four pieces, as required by the cavity. In this shape it is always ready for use, and does not deteriorate. In aqueous solution it spoils in three days. Its effect on the tongue is complete in one minute; hydrochlorate requires three minutes; but the effect of the citrate is not so profound, though more rapid. At present it costs eighty cents per grain; the price of the muriate is about sixty cents.

The discussion was closed.

Dr. Jacob L. Williams, M. D., D. D. S., of Boston, read a paper entitled "The Alternation of Rest with Effort."

The discussion of this paper was deferred until the next session.

Adjourned.

NEW YORK ODONTOLOGICAL SOCIETY.

The April meeting of this society was held at the residence of Dr. J. W. Clowes, 667 Fifth Ave., Dr. W. Jarvie, Jr., presiding.

Dr. Clowes read a paper on "Separations," in which he made allusion to a recent visit from a gentleman who had been his patient for thirty-five years, and who thanked the doctor for having filed his teeth apart many years ago, feeling convinced that but for the separations then made, his teeth would not have been so well preserved. Approximal decay had found no place to lurk, and plenty of room had been afforded to keep all the surfaces clean. Dr. Clowes referred to a paper on the same subject, which he read before the Odontological Society on a previous occasion, and which provoked sharp, adverse criticism, and an emphatic protest against such practice on the part of one gentleman in particular, who was considered an authority in his profession. This gentleman had spoken of the annoyances experienced from such separations, and the difficulty in mastication which it caused. He also stated that he had been called upon to restore, by contour fillings, teeth so cut away. "His harangue," said Dr. Clowes, "seemed to have a marked effect on his hearers, who possibly felt that to cut away teeth would greatly wrong their patients." A venerable friend, however, who happened to be present on that occasion, defended Dr. Clowes' practice, and alluded to the fact that the South Sea Islanders were in the habit of filing the approximal surfaces of their teeth, and with no apparent injury.

Dr. Clowes had practiced his method of separation for many years, and had never as yet received a complaint from any one so treated, yet he felt sure that his patients would not hesitate to make complaints if there was occasion for it. The doctor referred to "the approximal arch and lingual bevel" as a sure safeguard against approximal decay.

Dr. J. Smith Dodge, Jr., read an interesting paper on the Relation of Nerve Forces to the Teeth.

Dr. J. Morgan Howe considered Dr. Dodge's paper one of the ablest papers ever read before the society. He fully believed with the writer that nerve force had much to do with the supply of material to the teeth, but he did not believe the lime salts to be alive, as he understood the essayist to state in his paper.

Prof. Frank Abbott—Said that the paper expressed his own views on the subject. He had often advised patients to take more out of door exercise, and thereby help their digestion, for he believed this a cause of much dental trouble.

Dr. W. H. Atkinson—Was glad to have lived long enough to hear such a paper read before a dental society, and thought several evenings should be spent in discussing it. He wished there might be a full expression of the meeting concerning it.

Dr. N. W. Kingsley—Said that while listening to the paper, he envied the writer very much, and at the same time he had derived much pleasure in hearing the views of the essayist so beautifully expressed. He believed that the nervous system had much to do with the decay of teeth.

Dr. E. Parmly Brown—Thought salt was one of the factors of decay.

Editorial.

OBJECTIONABLE TERMS.

If dentists expect to receive any consideration as scientific, or professional, or educated men, they should exercise greater care in the use of technical terms, than is too often done. What impression must be left upon the mind of one who has been trained to professional exactness, when he hears those who lay claim to professional knowledge call the pulp of a tooth "the nerve." To any one who knows the character of nerve tissue, it conveys the impression of dense ignorance when a dentist speaks of "the bleeding nerve." To say that "the nerve was exposed" is absurd. When one says that he saw "the nerve in the tooth," he simply makes himself ridiculous, for no one ever did that without a microscope. The PULP is composed mainly of connective tissue, but it *contains* blood-vessels and nerve filaments, and it is the pulp that is referred to when dentists speak of "the nerve of a tooth."

Another gross error is the calling the first permanent molar "the sixth year molar," or more commonly "the six year old molar." The expression is extremely discordant, unscientific, and incorrect. There is a grave grammatical error in employing it as it is commonly used, one that is so egregious that no man possessed of even a common school education would commit it, except from

the force of habit, or through inexcusable carelessness. Why will not dentists cultivate correct speech, and use language worthy professional men, calling the organs which it is their special province to treat by their proper names, as first, second, and third permanent, or deciduous molars.

To one who has any knowledge of the modern theories concerning septic diseases and conditions, it sounds very strange to hear intelligent men speak of "bugs" in connection with diseases of the mouth. It cannot be possible that any one who reads even the daily or weekly newspaper can entertain the idea that fungi are of an animal nature, yet we not infrequently hear men who claim to possess some share of intelligence and information, actually speaking of bacteria as if they were ravenous beasts, and talking of the "bug theory" of disease. Such expressions indicate an entire lack of comprehension of one of the most important processes of nature—the fermentation of organic substances through the proliferation of microscopical fungi, the growth of vegetable microorganisms. Brethren, let us banish all these terms as savoring too much of the "tooth-carpentry" period; as reminiscent of the time when dentists laid no claim to being professional men.

DENTAL DISEASES IN ANIMALS.

At the meeting of the Odontological Society of Great Britain, held in London, April 13, 1885, (see Transactions, April No.) a very interesting paper was read by J. Bland Sutton, F. R. C. S., upon "Injuries and Diseases of the Jaws of Animals," in which he demonstrated, by means of actual specimens, that many animals are not exempt from dental and oral lesions. A number of cases of malformations, atrophies, hypertrophies, and morbid growths were exhibited. It was stated that some wild animals were quite liable to dental troubles of all kinds, such as caries, deposits of tartar, inflammation of the pulp, alveolar abscess, hypertrophies and necrosis, and these assertions were verified by the exhibition of confirmatory specimens. The skull of a monkey was produced which, it was said, had died from pyæmia induced by pyorrhea alveolaris. Odontomes and dentigerous cysts were shown as having occurred in both wild and domestic animals.

Mr. Sutton is rapidly gaining an enviable reputation as a comparative pathologist, and we shall look with interest for further contributions from him to this department of medical and dental science.

OUR BOOK TABLE.

MODERN THERAPEUTICS OF THE DISEASES OF CHILDREN, WITH OBSERVATIONS ON THE HYGIENE OF INFANCY; by JOSEPH F. EDWARDS, M. D. Editor of the Annals of Hygiene; Associate editor of the Medical and Surgical Reporter; author of "Bright's Disease and its Treatment,"; Fellow of the College of Physicians of Philadelphia, etc., etc. Philadelphia: D. G. Brinton, 1885.

When a book is announced as having been written and prepared in the office of *The Medical and Surgical Reporter*, it may safely be assumed that it is well worth attention. Dr. Brinton and his staff have too much of knowledge and experience to permit serious mistakes in their estimate of medical literature. So, when we are told that this work is prepared by one of the editors of *The Reporter*, and that it is published by the editor in chief of that sterling journal, little more need be said.

The plan of the work differs materially from that of other modern works on the ailments of children. In the first place, it is devoted mainly to the therapeutics of disease. Then again, instead of being a continued series of chapters by one author, each section devoted to some particular phase of disease, the method of treatment of the most eminent foreign and American specialists is presented under each head. The sum of the wisdom and experience of all those most competent to advise is thus epitomized, and instead of the opinion of one man, there is given the judgment of many. In addition, the latest writings and most recent discoveries are summarized, and the whole given in a convenient form. Thus the results of the experience of ages and the last new investigations, are presented side by side. Under the head of "Diarrhœal Disorders," for instance, the experience, methods of treatment, and usual prescriptions of no less than twenty-seven eminent practitioners of America and Europe are given, besides a syllabus of the most important articles from different publications, and a general table of "Notes on Remedies." When it is remembered that all this great mass of information is completely indexed, so that it is easy to turn at once to the opinion of any authority on any subject, or to notes on any special remedy, or to particular phases of any disease, it may readily be seen what an invaluable work of reference upon the therapeutics of an important class of diseases is here presented.

Current News and Opinion.

FOURTEENTH ANNUAL MEETING OF THE KANSAS STATE DENTAL ASSOCIATION.

The Kansas State Dental Society met at Topeka, May 5th, and held a meeting of great profit and interest. Papers were read by Drs. L. C. Wasson,, J. D. Patterson, R. I. Pearson, and others. During the meeting, Dr. Patterson, on behalf of the society, presented Dr. L. C. Wasson, who is one of the State Senators of Kansas, with a beautiful gold headed cane, in recognition of his successful efforts for the passage of the State Dental Law. As soon as Dr. Wasson had closed his feeling response, Dr. Thompson, of Topeka, rose and presented Dr. R. I. Pearson with another gold headed cane, in recognition of his services in the same cause, and for the great interest he had manifested in the State Society. Both gentlemen were completely surprised, but managed to express their pleasure in this mark of the esteem of their brethren.

The following resolutions were unanimously adopted :

WHEREAS. Since the last meeting of the Kansas State Dental Association, the all-wise author of our being has removed by death, our highly esteemed friend and fellow-laborer, Dr. L. P. Meredith. Therefore

Resolved, That we desire to give expression to our sincere regret that one so valuable to the dental profession as an author and as a cultivated gentleman, and one of such high professional attainments should be lost to the cause of dental progress in the world.

Resolved, That we will profit by his counsels, which were always so ably given.

Resolved, That a copy of these resolutions be spread upon a memorial page in the association records, a copy furnished to the family of the deceased, and to the dental journals.

Resolved, That we extend to his sorrowing family our sincere sympathy in their deep affliction.

J. D. PATTERSON,
R. I. PEARSON,
A. H. THOMPSON.
} *Committee.*

C. B. REED, Secretary.

KENTUCKY STATE DENTAL ASSOCIATION.

The fifteenth annual meeting of this society will be held at the Galt House, Louisville, commencing Tuesday, June 2, 1885, at 2 o'clock, P. M. The executive committee have prepared an excellent programme, and a full attendance is expected. All practicing dentists are invited to be present.

R. C. MORGAN, Pres'dt, Lancaster.

C. E. DUNN, Sec'y, Louisville.

DENTAL LAW IN MINNESOTA.

Pursuant to a law entitled "An Act to regulate the practice of Dentistry in the State of Minnesota," approved March 3, 1885, the Governor of the State has appointed as the first Board of Dental Examiners the following practitioners:

J. I. Clements, D. D. S., *President*, Faribault.
G. V. I. Brown, D. D. S., St. Paul.
G. B. Merry, D. D. S., Stillwater.
M. R. Metcalf, D. D. S., Duluth.
J. H. Martindale, M. D., D. D. S., *Secretary*, Minneapolis.

The board is required by the law, first, to demand of all dentists who were practicing in the State of Minnesota previous to March 3, 1885, that they register with them in a book kept for the purpose; secondly, to require of all dentists who shall have come to the State after said date, that they pass a satisfactory examination in the science and art of dental surgery, or present diplomas from reputable dental colleges.

The members of the board at their first meeting unanimously agreed to execute, so far as in them lies, the full spirit and letter of the law, and to work in harmony with the National Board of Dental Examiners, as far as possible.

J. H. MARTINDALE, Secretary.

MISSOURI STATE DENTAL ASSOCIATION.

The twenty-first annual meeting of the Missouri State Dental Association will be held at Sweet Springs, Mo., commencing July 7, 1885. All are cordially invited to visit this beautiful watering place, and attend this meeting.

By order of exec. committee,

J. D. PATTERSON,
C. B. HEWITT,
E. E. SHATTUCK.

THE WOODEN TOOTHPICK.

A traveling man called on me yesterday morning, with his face badly swollen. He said he had visited an operator in a western city, and was told that he had an "ulcerated tooth." Upon examination I found a high state of inflammation, and pus exuding freely from between the first and second right superior molars. The patient stated that this state of things had been going on for two weeks, with no relief. The teeth were perfectly sound. While using

the probe, I detected a foreign substance; on removing it I found it to be a piece of wooden toothpick, half an inch long. On seeing it he remarked, "I broke that off six weeks ago, but thought I had it all out." This is the second case of the kind that I have had in less than six months. It is about time that wooden toothpicks were discarded. RATHBUN.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of the National Association of Dental Faculties will be held at the Sherman House, in Chicago, at 11 o'clock, A. M., July 31st. By order of the executive committee.

H. A. SMITH, Secretary. C. N. PIERCE. President.

ARTICLE VII OF THE CONSTITUTION.

Membership: Any reputable dental college may be represented in this body upon submitting to the executive committee satisfactory credentials, signing the constitution, conforming to the rules and regulations of this body, and paying such assessments as may be made.

AMERICAN DENTAL SOCIETY OF EUROPE.

The thirteenth annual meeting of the American Dental Society of Europe will be held in Berlin, on August 25, 26, and 27, 1885. Members having communications to present are requested to notify the recording secretary of the same at an early date. It is the duty of every member to work for the standing of the Society and of American Dentistry in Europe. "No time" is closely related to no inclination.

OFFICERS:

President, W. D. Miller, Berlin; *Vice-President*, H. C. Edwards, Madrid; *Treasurer*, E. De Trey, Vevey; *Secretary*, F. Foerster, Berlin.

CONNECTICUT VALLEY AND MASSACHUSETTS DENTAL SOCIETIES.

The Connecticut Valley Dental Society, and the Massachusetts Dental Society, will hold a joint convention at Worcester, Wednesday and Thursday, June 24th and 25th.

A number of the prominent members of each society will present papers, and the executive committees have arranged to make this meeting unusually interesting and profitable.

A cordial invitation is extended to all members of the profession.

The Bay State House will be the head-quarters of both societies.

GEO. A. MAXFIELD, Secretary.

(58.) Three weeks ago I placed in the mouth of a patient, a lady of middle age, a full set of teeth on ordinary red rubber. The pieces were well vulcanized, but almost immediately a profuse flow of saliva commenced, which has continued ever since—about three weeks. They do not hurt her, and she can use them comfortably, but while she is speaking the saliva will flow out of her mouth, almost in a stream. Undoubtedly, some dentists will insist that it is the mercury in the rubber, but I have never observed any such ill effects before, and I have made a great many such plates. Cannot some one enlighten me upon the subject. OLD DENTIST.

(59.) Mothers frequently apply to me, bringing young children with abscessed temporary teeth. I fully recognize the fact that the first teeth should not be extracted, if it is possible to keep them in. But we cannot leave the little ones to suffer continually, and some relief must be given. Extraction is a painful process, and inspires the little ones with such a horror of the dentist that it is almost impossible ever to get them inside the office again. It is not practicable to fill the roots, as we might in adult teeth. I should be glad to know the practice of dentists generally in these cases, and will be obliged if some one having an extended experience will answer. B. C. M.

(60) In the April number of this journal is an editorial, in which we are told that cocaine acts only upon nervous tissue. I should like to be informed *how* it acts, and in what manner it suspends sensation? P. W. B.

(61.) I have not seen or heard much lately concerning the bleaching of teeth that were discolored. Has this practice been abandoned? I have a bad case, and would be glad of advice as to how best to proceed? DENTOS.

(62.) I have lately been using Peroxide of Hydrogen in the treatment of chronic abscess, and it works like a charm. I see that it is recommended by Dr. Harlan, that after an application of this it is best to succeed it with another remedy. Will he tell us why, so long as this seems to do the work? BYRON.

(63.) Will some reader of the INDEPENDENT PRACTITIONER kindly favor me with the formula for making "Liquid Silex?" R. C. M., Germany.

Answers.

R. (53.) Use dialysed iron to neutralize the arsenious acid that may have escaped from the cavity when devitalizing a pulp. B.

P. W. B. (60.) It is impossible, within the limits of this page, to present a treatise upon the physiological effects of any drug. It is sufficient to say that to paralyze nervous tissue is the specific office of anæsthetics. It is in this way that chloroform acts. It is carried by the blood to the arterioles, where it meets the terminal nerve filaments, and its action is to suspend their functions and to interrupt nervous currents. The primary effect is at the periphery of the nerves, and the progress of anæsthesia is toward the great ganglia. Cocaine will not produce its characteristic effects unless placed in actual contact with nerve tissue. Its action is lost if it be introduced into the blood. The primary action of strychnia, woorari, hydrocyanic acid, etc., is directly the opposite to that of chloroform, ether, and nitrous oxide, as their primary action is on the nerve centres, the influence extending towards the periphery. The action of all these drugs is *specific*, and not through nutritive, or (probably) molecular changes. EDITOR.

We are always glad to receive communications for this, the *practical* department of the INDEPENDENT PRACTITIONER. Let those who desire information ask it, and those who have knowledge impart it.—*Editor.*

NEW YORK, April 21, 1885.

Publishers of the Independent Practitioner:

GENTLEMEN:—In the report of the proceedings at the Annual Dinner of the Odontological Society, published in the March, 1885, No. of your Magazine, at page 154, the following statement is made:

"One of the happiest hits of the evening was when Mr. Whitelaw Reid of the *Tribune*, speaking for the press, said that there was a class of dentists that he did not see represented, one alone of which was of a great deal more value to the press than the entire body then present. He would not for the life of him dare enter their office, but he was most happy to meet them in his. Richmond had paid him five hundred dollars for one advertisement, while not one of those before him had ever paid him one cent, and he didn't suppose they ever would."

We find that some members of the dental profession have seen fit to place upon these remarks, attributed to Mr. Reid, a construction unfavorable to the Sheffield Tooth Crown Company, and International Tooth Crown Company, and the tooth-crown and bridge operations practiced by them under letters patent, some of which were originally granted to the Richmond referred to. That there might be no misconception by the profession or the public of the actual meaning intended to be conveyed by Mr. Reid in his remarks, our counsel, Mr. Edmonds, has addressed him on the subject, and has received the following letter in reply:

New York Tribune, NEW YORK, April, 17, 1885.

"DEAR SIR:—Your favor of the 16th inst., asking for a corrected report of some parts of an after-dinner speech, at a dinner of dentists, and your previous letter on the same subject, forwarded during my absence, are at hand.

"Really, you ask too much. You might as well ask a man to remember which foot was foremost when he got out of bed this day three months ago, as to recall the words of an utterly unpremeditated and unreported after-dinner speech last winter.

"If asked about it before my memory was refreshed by your letters, I should probably have had no recollection of any reference to Dr. Richmond at all. Thinking it over, however, in the light of what you have sent me, I can now recall that in the course of some remarks, which were supposed to be jocular throughout, there was a 'chaffing' use of the old joke about the dread one always feels at encountering a single dentist, and some talk about the greater terror that such a room full of them as this ought to inspire. In continuation, in the same strain, something was said about my thinking more of Dr. Richmond than any of those present, since he thought more of the newspapers, and that while I should always dread going to his office, I should always be very glad to see him in mine.

"It is obvious that nothing could have been said intended to disparage any professional man, present or absent, and I should not have supposed that the idea of taking such after-dinner talk seriously would have occurred to anybody in his senses.

"Respectfully,

"WHITELAW REID."

In view of the injurious use which parties hostile to us are making of Mr. Reid's remarks, as published in your Magazine, we trust that you will not hesitate to publish his letter.

Respectfully,

INTERNATIONAL TOOTH CROWN CO., and

SHEFFIELD TOOTH CROWN CO.

Per LUCIUS T. SHEFFIELD,

Treasurer.

"PREVENTIVE MEDICINE."

PROPHYLACTIC, ANTISEPTIC, DISINFECTANT,

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NON-TOXIC, NON-IRRITANT, NON-ESCHAROTIC.

These properties added to the absolute safety of Listerine, its agreeable character and uniform strength, concentrates into this preparation every requisite of a perfect Prophylactic, and gives it undoubted superiority over all other Antiseptics, especially for internal use. The well-known therapy of the several ingredients of Listerine confirms its claims for more than merely mechanical germicidal properties.

Formula.—LISTERINE is the *essential Antiseptic* constituent of Thyme, Eucalyptus, Baptisia Gaultheria and Mentha Arvensis in combination. Each *fluid drachm* also contains *two* grains of *refined* and *purified* Benzo-Boracic Acid.

Dose.—One teaspoonful *three* or *more* times a day (as indicated). As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used *ad libitum*, diluted as desired.

The universal commendation of LISTERINE by Physicians and Scientists of all Schools throughout the United States, after five years' thorough Clinical Experience, has fully established its value in **PHTHISIS, DYSPEPSIA, DIPHTHERIA, CATARRH, DYSENTERY, SCARLATINA, SMALL-POX, ERYSIPELAS, TYPHOID** and other **FEVERS**; and as the most grateful and pleasant disinfectant and prophylactic for **VAGINAL INJECTIONS** in **OBSTETRICS, LEUCORRHŒA, GONORRHŒA**, and, notably, for the hands, after Surgical and Gynæcological Operations.

This accumulated evidence of merit indicates its special adaptability to

DENTAL PRACTICE.

The testimony of its value in the treatment of ORAL DISEASES, in Dental Practice, is set forth in a special pamphlet on that subject to be obtained gratis on application, together with many Valuable Clinical Notes and Reprints by Eminent Surgical, Medical and Dental Authors.

☞Three Reprinted Lectures on **CHRONIC NASAL CATARRH**, (illustrated by forty wood cuts,) by Prof. GEORGE M. LEFFERTS, M. D., New York City, are now ready for delivery, free of cost, to those who mention this Journal in making application.

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1-5-AN-1

To the Dental Profession.

GENTLEMEN:

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

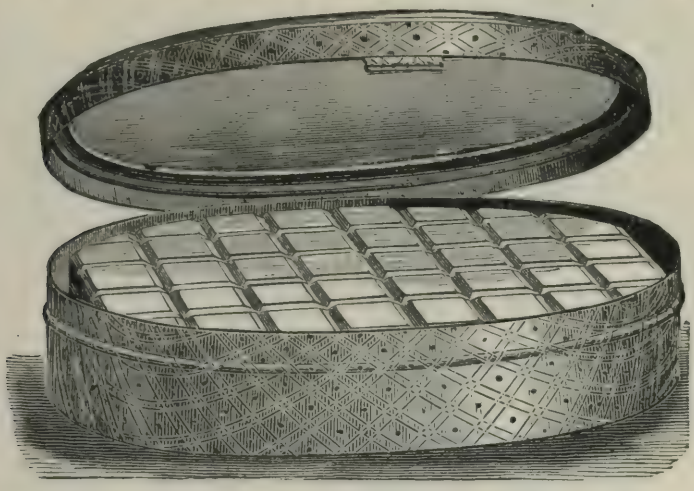
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

DR. I. W. LYON'S TOOTH TABLETS



For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

HIGHLY INDORSED BY EMINENT DENTISTS.

PRICE **50** CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

DR. I. W. LYON'S

PERFECT TOOTH POWDER



ENAMELLED METAL BOX
REDUCED IN SIZE.

This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.



ENAMELLED PAPER CARTON
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On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure*.

We claim it to be superior to any other make for its peculiar *softness*. It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling*. If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

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MADE EXPRESSLY of filling TEETH

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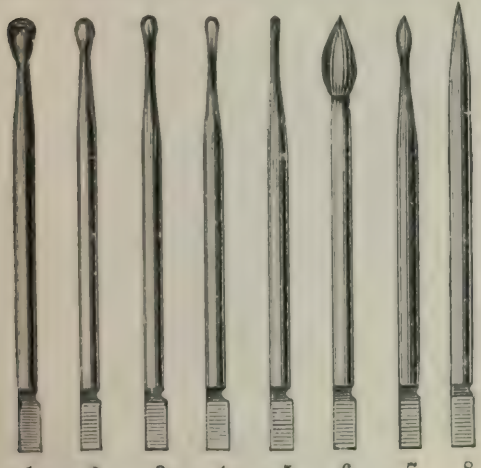
DENTISTS SPECIALTIES

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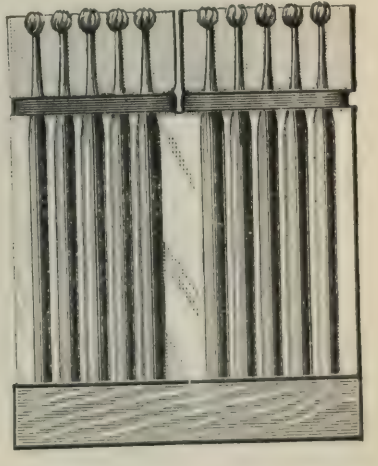
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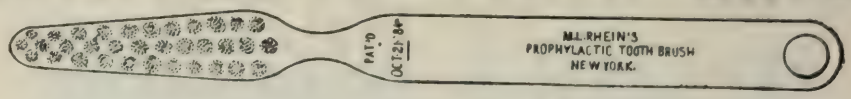
Imported Burs, Stone Cut.

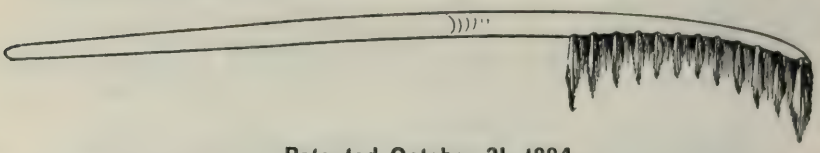


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Adult's, - - -	per doz., $3.00	Child's, - - -	per doz., $2.50
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" 1 gross or more,	" 2.50	" 1 gross or more,	" 2.00

Single brushes will be sent postpaid on receipt of 35 cents, or 3 for $1.00.

The Adult Brushes come packed in boxes of a dozen each, of which (unless otherwise specially ordered) the bristles of three are soft, three hard, while six are of medium quality. Each individual brush is in an envelope, having printed directions thereon for its proper use.

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" B. C. Nash, " " "
" Wardwell Bros., " " "
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" T. W. Brophy, Chicago, Ill.
" Frank H. Gardiner, Chicago, Ill.
" W. W. Allport, " "
" B. L. Rhein, " "
" G. C. Daboll, Buffalo, N. Y.
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" C. F. Wheeler, " "
" M. L. Rhein, " "
" S. M. Cummins, Elkhart, Ind.
" C. B. Hargrave, Salem, Ind.

Dr. Edwin T. Darby, Philadelphia, Pa.
" Louis Jack, " "
" W. F. W. Trout, " "
" A. H. Brockway, Brooklyn, N. Y.
" J. W. Race, " "
" H. G. Mirick, " "
" C. E. Brooks, " "
" E. Parmly Brown, Flushing, L. I.
" C. T. Stockwell, Springfield, Mass.
" W. Morgan, " "
" E. P. Hawes, Providence, R. I.
" E. S. Gaylord, New Haven, Conn.
" J. L. Williams, " " "
" C. A. Timme, Hoboken, N. J.
" S. Freeman, Easton, Pa.
" G. L. Parmele, Hartford, Conn.
" I. Williams, New Philadelphia, Ohio.
" J. L. Hill, Gettysburgh, Pa.
" D. D. Magill, Erie, Pa.
" H. D. Hurlburt, St. Albans, Vt.
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" C. A. Timme, Hoboken, N. J.
" C F. Wheeler, Albany, N. Y.
Dr. E. Parmly Brown. Flushing, L. I.
" G. C. Daboll, Buffalo, N. Y.
" A. H. Brockway, Brooklyn, N. Y.
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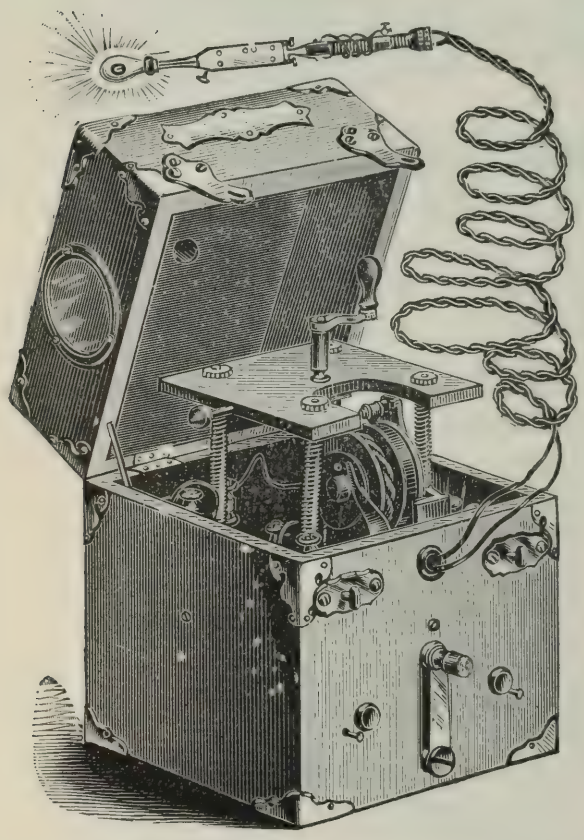
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THE

Independent Practitioner.

VOL. VI. JULY, 1885. No. 7.

Original Communications.

SOME RECENT EVENTS CONNECTED WITH THE DENTAL PROFESSION IN ENGLAND.

BY W. H. WAITE, D. D. S., LIVERPOOL, ENGLAND.

READ BEFORE THE DENTAL SOCIETY OF THE STATE OF NEW YORK, MAY 14, 1885.

Mr. President and Gentlemen:

I should be entirely unworthy of the compliment you have paid me, in allowing me to appear before you, if I did not seize the first opportunity to express my deep sense of your kindness, and the very great pleasure it affords me to meet once, "*in propria persona*," the members and friends of the New York State Dental Society. Further, this being in a sense a public occasion, I desire, as an Englishman and an English dentist, to utter fraternal greetings towards all American brethren, and to acknowledge my vast indebtedness to them, both for many invaluable suggestions and appliances, which have relieved the burden of daily labor, and also for very many additions to the general store of scientific facts, upon which alone we may safely attempt to erect our theories or regulate our practice.

The fame of American dentistry is world wide, but the high character and generous disposition of many American dentists can be known only to those who enjoy social and professional inter-

course with them. Speaking again as an Englishman and an English dentist, I am proud to declare that some of the friends I esteem most highly and love most dearly are American dentists.

Gentlemen, it is exactly ten years at this time since I had the honor of presenting you with some not very flattering aspects of the condition of the dental profession in my country. To-day, it is my pleasing duty to report a rapid and vast improvement. It is said that the darkest hour of the night is the hour immediately before dawn. Certainly the period to which I refer appeared the darkest in the history of our profession in England, but dawn was even then approaching. While many were shaking their heads and saying "Men and brethren, what shall we do?" an honest, large-hearted brother of ours in the town of Stockport (Sidney Wormald by name), had long been revolving the question, and had already set himself to the work of answering it.

In August, 1875, a public meeting of dentists was summoned by his invitation, to assemble in Manchester, the most central city in the north of England, for the purpose of considering what could be done to remedy the glaring evils that had become rampant in the dental world.

Up to this time the dental profession was a body without a head, but afflicted with an enormous development of tail. The Odontological Society of Great Britain had foresworn all but scientific subjects, and there was no apparent means by which the public could be protected from the depredations of uneducated and unprincipled adventurers.

Chaos and apathy divided the honors. Those who might have inaugurated reform remained silent, until the dry bones were shaken by the aforesaid meeting in Manchester.

The outcome of this effort was the formation of a "Dental Reform Committee," composed of representative men from different parts of the country, whose aim was to endeavor to procure some act or legal provision making it compulsory upon all who should hereafter enter upon the practice of dentistry, that they should receive some kind of special education before assuming the title of dentist.

The task thus undertaken was neither easy nor hopeful. The proverbial tardiness of legislation was increased by covert and active opposition. The doctors and the druggists were both

alarmed, lest they should be deprived of the innocent amusement of extracting teeth for a small consideration.

Rather than imperil or postpone the whole matter, the executive of the Dental Reform Committee wisely consented not to defraud either the doctors or the druggists of their lucrative and agreeable pleasure, but with a generosity whose wisdom some might question, they went further, and conceded to the aforesaid doctors and druggists the privilege of being allowed, should they so desire, to call themselves "dentists," within the meaning of the schedule.

Eventually, however, in July, 1878, about three years after the Manchester trumpet first sounded the alarm, the "Dentist's Act" passed both houses of Parliament and received the Royal assent.

It may be interesting just to quote the principal clause of this Act, in order that its purpose may be more clearly understood.

"From and after the first day of August, 1879, a person shall not be entitled to take or use the name or title of dentist (either alone or in combination with any other word or words), or of dental practitioner, or any name, title, or description, implying that he is registered under this act, or that he is a person specially qualified to practice dentistry, *unless he is registered* under this Act."

Thus it will be seen that twelve months elapsed after the passing of the act before it came into operation. This period was afforded to enable all existing dentists to register themselves. After the 1st of August, 1879 (with one or two reservations, in behalf of pupils and colonial practitioners), the necessary requirement for registration was that the applicant should be "a licentiate in dental surgery or dentistry of any of the medical authorities." By this means the door of admission to the practice of dentistry in Great Britain was practically closed to Tom, Dick and Harry, until these individuals should have passed through a prescribed curriculum of study, submitted themselves to a thorough examination, and obtained the necessary license.

Thus a great advance is recorded; an advance the import of which, both to the British public and to the Dental profession, cannot be exaggerated; an advance upon the lines of wise and beneficent legislation, the aim of which must ever be to secure "the greatest good to the greatest number."

It would obviously be invidious in a rapid sketch like this to attempt any eulogy, or to pay anything more than a passing tribute

of admiration and gratitude. The name of John Tomes is familiar to dentists throughout the world, and it will descend to posterity, associated not alone with laborious investigations in the realms of science, but as the head of this great movement, whereby our calling has been lifted out of degradation into a recognized position. Alongside we must place the well-known and much respected name of James Smith Turner, to whose sleepless watchfulness and untiring energy very much of the rapidity and success of our advancement must be attributed. Thus wisdom and resolute determination were allied, and future generations laid under a perpetual obligation. To these two men, ably supported as they were by the counsel and co-operation of the whole of the committee, belongs the satisfaction of something accomplished in the interest of humanity; not a perfect thing, but as perfect probably as it could be made; not a present boon, but a broad foundation upon which shall arise, as years roll on, a superstructure of encouragement and stimulus to future practitioners, and of comfort and blessing to the general community. All honor to men who labor to such noble purpose.

Now, should we turn aside for a moment, we may notice another event or movement which ran parallel with the efforts of the Dental Reform Committee, though they neither encouraged nor assisted it.

So far back as 1859, permissive power was granted to the College of Surgeons in London, enabling them at their pleasure to examine and confer a license upon dental practitioners. Comparatively few English dentists (200 or 300) availed themselves of this condescension; but a curriculum was carefully prepared, Dental Hospitals began to assume form as schools for students, and some good work was being done, year by year, in the training of young men. The "Dentist's Act" was designed to making this license a *sine qua non* for future practitioners, and if it were allowed to pass without some increased facilities for obtaining the license, an invidious distinction would be created by law between the fortunate possessors of this license and those who, not having been quite awake about the year 1859, had neglected to obtain it for themselves during the years of grace.

The College in London had, with true British dignity, long since closed its doors except to pupils per curriculum, and with real

British obstinacy practically refused every appeal for a re-opening. Again our honest friend at Stockport solved the problem, and applied himself bravely to the task. Another meeting was called in Manchester, in May, 1877, to awaken some interest in this matter, and endeavor, if possible, to induce the College of Surgeons in Ireland, or one of the other licensing bodies of Great Britain, to appoint an examining board for dentists, and issue licenses.* Meetings on this subject were held in several of the principal cities of England. A strong representation was made to the Irish College, and they wisely took the matter into consideration. A clause was inserted in the Dentist's Act, giving authority to each of the licensing bodies to establish a dental department, and immediately upon the passage of the act a considerable number (some 400 or 500) of English dentists of repute, and of established practice, entered themselves for examination in Dublin, and thus obtained what in England it was impossible for them to get, a recognized dental qualification.

Perhaps it should be stated that after a while the English College authorities determined to open their doors once more, with saving restrictions, however, for the maintenance of their dignity. Also the Edinburgh College of Surgeons, together with the Faculty of Physicians and Surgeons of Glasgow, all conspired to multiply facilities for the obtainment of a legitimate qualification.

It cannot be denied that herein we mark another decidedly onward step; not that we are of opinion that a diploma is of great value to the practitioner *per se*, but rather to the public, since the possession of it, if honestly obtained, affords some guarantee of fitness for the duties assumed. In England, however, our profession has hitherto held a very ambiguous position; the number of accredited dentists has been very small, and the growth of public demand for such accreditment was, except in some of the large cities, almost imperceptible. Such a movement as the admission of 400 or 500 practitioners to the ranks of qualified men could not fail to make a deep impression. Hence we find that in all hospital appointments the L. D. S. is now an essential qualification; that in seeking for recommendations people are notably disposed to ask, "Is he qualified?" and, best of all, in a professional sense, there has

* All the licensing bodies in Great Britain derive their powers from the English Parliament, so that legally they stand on an equal footing.

been these late years a marked and very general increase of good feeling and acknowledged recognition on the part of the medical profession.

The importance of the latter fact can scarcely be measured except by those who are well acquainted with two other collateral facts, viz: first, the very high and deservedly respected social status of the English "doctor," and second (whether for good or ill), the intimate association of the dental with the medical profession, the former being now indeed an acknowledged department of the latter. For a dentist to be recognized at all as above the level of a tinker or a barber is still something in many parts of England, but an immense improvement is rapidly being effected, and this generation shall not pass till our highest hopes in this connection will be fulfilled.

Now, gentlemen, if you are not already weary of "foreign politics," I have yet another item of intelligence which, to American ears, will be more welcome and familiar than either of the foregoing.

The Dentist's Act was passed in the month of July, 1878. The Dental Reform Committee had then performed its functions. The question at once arose, What next? Should the committee resolve itself into its original elements, or should it use the prestige and influence gained by success, for the future providing and guidance of the now legally constituted dental profession?

Much anxious thought and many diverse opinions were given, but manifold good intentions at length culminated in the resolve to endeavor to organize a permanent association, to be modeled somewhat after the fashion of the "British Medical Association," but possessing enough elasticity to accommodate itself readily to new and peculiar conditions.

Accordingly, in the month of March, 1879, a public meeting of dental practitioners, convened by advertisement in the London "Times," was held in Willis's Rooms, London, for the declared object of converting the Dental Reform Committee into the nucleus of a new association. The day was an eventful one in the history of English dentistry. Hitherto there had been far too much of jealousy and mistrust and apathy between differing sections, and particularly as between the metropolitan and provincial members of our body. If success were to attend any future enterprise, there

must be mutual conciliation and mutual earnest resolve to work generously and patiently together.

The venerable leader, John Tomes, respected and trusted by all, presided over the meeting, at which between one hundred and two hundred dentists were present, from all parts of the country. Resolutions gratefully recording past labor, and constituting the Reform Committee into a Representative Board were unanimously passed, and with quiet, wistful, perhaps in some instances questioning spirit, but with much hope and self-devotion on the part of many, the new ship was launched, and ere that meeting separated the dental profession in England had a head placed upon its shoulders, a head connected in a thoroughly liberal and representative manner with every part of the body, and there had come into existence the "British Dental Association."*

Not further to detain you by the recital of history, it will be sufficient to say that though this occurred so recently as 1879, there have come into existence no fewer than six branches of the association in different districts of Great Britain, viz :

The Midland Branch, founded 1880.

The Western Counties, founded 1882.

The Scotch Branch, founded 1883.

The Eastern Counties, founded ——.

The West of Scotland, founded 1884.

The Central Branch, founded ——.

All these are exerting a healthy, purifying influence, by furnishing opportunities of intercourse and discussion upon any or every subject connected with the practice of our specialty. Then we have a journal, the particular organ of the association, and the best journal in England. Besides these, a benevolent fund has been established under the auspices of the association, which is already doing excellent service in behalf of helpless widows and orphans.

The establishment of the British Dental Association marks a new era in the dental profession; it is not only an advance, but it is a new departure. Organized upon a thoroughly broad and representative basis, sanctioned by the approval and authority of gov-

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* The objects for which the association is established are the promotion of dental and the allied sciences, and the maintenance of the honor and the interests of the dental profession. (See Articles of Association, page 1.)

ernment, offering inducements to all and exclusion to none who desire the real elevation of our calling, affording through its various branches occasion for exercise and development of latent power in each section of the country, the British Dental Association promises to exert a mighty renovating influence upon all our future progress.

Though but six years old, the association already embraces a large number of qualified and reputable dental practitioners in England and Scotland, with not a few from the sister Isle. Those who for many years have occupied high positions in London and other large cities have generously supported the association from the first, and, as a matter of fact, the British Dental Association includes (with very few exceptions) all the best dentists in Great Britain.

We want it to be understood that the future position and progress of dental surgery in the British Isles is committed to the care and entrusted to the guidance of the British Dental Association, and that the British Dental Association is the direct, the sole, the responsible representative of dental surgery amongst us.

Gentlemen, my sketch is a very rapid and cursory one; circumstances have rendered it impossible that it should be otherwise, but I am not aware of having omitted any important fact.

To tell you of the self-denial, the unwearying labor, the anxious and sometimes doubtful thoughts, the many bitter discouragements, as well as the pleasurable disappointments attendant upon these several changes, would be an impossible undertaking.

To picture before you the imperfections, the indifference, the selfishness and jealousy still existent, would be now an unprofitable task.

My purpose in this very hasty and imperfect review has simply been to make you acquainted with plain facts, accomplished and present, in the dental profession in England, and, in conclusion, let us hope that whether at home or abroad, wherever our services may be required, the members of the dental profession will ever be found able, willing, and devoted to the noblest of all labor, the relief of human suffering and the increase of human comfort and happiness. Whatever the surroundings or circumstances of our calling may be in particular countries or districts, I am sure we all feel that dental practice in itself affords scope for the highest intel-

lectual power, and the purest moral principle, and that for us all, the wide world over, our standing before men will ever depend, not upon legal enactments, nor combinations for self-defense, but entirely and alone upon individual knowledge and skill, exercised under the control of individual integrity and self-renunciation.

A selfish man cannot long retain the esteem of his fellows, but a simple, steadfast, unflinching purpose, consecrating every power, every resource, to the general well-being of those around, can never fail to exalt the individual, and through him the profession to which he belongs, to the highest rank of public opinion.

The members of the Midland Branch of the "British Dental Association," having learned that the Secretary is about to meet the "Dental Society of the State of New York" at their annual meeting, desire to convey through him cordial expressions of esteem and fraternal greeting toward the dental profession throughout the United States of America.

President, H. BLANDY, (Nottingham.)
Treasurer, S. WORMALD, (Stockport.)
Secretary, W. H. WAITE, (Liverpool.)

ATMOSPHERIC PRESSURE IN THE RETENTION OF ENTIRE DENTURES.

BY W. B. AMES, D. D. S., CHICAGO, ILL.

The principle of atmospheric pressure is definite enough, and easy of understanding and of application to solids of definite form, or to liquids, but when applied to bodies of variable form and resistance much attention to detail is called for. As in any branch of our art, it is not the adherence to general principles as much as the attention to detail and conditions that brings success.

In looking over the literature at command, I find that very little has been written on the subject of late years, and what has been written at any time has been of an indefinite nature. The instruction in the

various text books is extremely vague as to the application of the principle of atmospheric pressure to the retention of artificial dentures. They speak of its being applied in cavity plates and contact plates, saying nothing about the conditions on which the success of each method depends. For instance, Richardson says, "where practicable, it is better to make a central chamber, the size and location of which will depend upon the condition of the soft parts," without specifying the condition.

Much has been said of the advantages and injurious effects of this central chamber, and its usefulness and uselessness much discussed. About the year 1862, a sort of controversy on this subject was indulged in by some of the lights of the profession. Dr. John Allen published a thoroughly scientific article, in which he claimed that the only office of the central chamber is to prevent the rocking of the plate upon the hard parts in the centre of the palate. Dr. Pease, in a very extensive discussion, urges the necessity of the cavity over the centre of the palate, the amount of pressure derived being proportional to the size of this cavity. Dr. Ambler Tees, in a paper read before the Illinois State Society, makes a statement to the effect that he has in several instances swaged two plates for the same mouth, one with a chamber and one without, and found the pressure so much stronger in the former that in every case he discarded the latter. Now in this method of Dr. Tees, we have no statement to show that he made his plain plate of different size, shape, or relations from his cavity plate. Other cases have been cited where mouths have been satisfactorily fitted with *plain* plates, after various failures with plates depending upon the suction of a central cavity had been met with, but the citer never describes the relations of his plate to the tissues beneath and about it, which would indicate that a stroke of luck was to be credited with the results. In these cases I hold that something more than the adhesion of contact or capillary attraction must have been secured, either rationally or otherwise, and that this *something* is a powerful pressure of the atmosphere. This pressure I am able to obtain with plates devoid of any central cavity or air chamber, by a method which I have employed for sufficient time to be satisfied that it is applicable to any case where there is firm tissue over any part of the palate or alveolar ridge.

Various methods of trimming the impression and model to relieve and equalize pressure have been given from time to time, the best of which I consider to be that of Dr. Holbrook, of Kenosha, Wisconsin, which method he patented, and divulged to the profession for value received only, and under promise of secrecy. This method, as exposed by the inventor, seemed most applicable to lower dentures, his instructions for the treatment of upper cases not being sufficient to cover all requirements for best results in the majority of cases.

His main points were to trim the impression where the jaw is hard, and the model where the jaw is soft, over such parts as are to be covered by the plate. Thus, in most cases, he would pare away the *impression* to correspond with the firm surface at the central region of the palate, and cut a groove across the *model*, anterior to the line of attachment of the soft palate. This groove, which would mark the posterior termination of the plate, would be deepest at each side, and shallow directly over the median line. This is the substance of his instruction, the aim being to avoid rocking and to obtain perfect contact at the posterior edge.

In most cases the variable resistance of the tissues anterior to the soft palate is the condition that is fatal to best results by this method. In a few cases the tissues are sufficiently lax over the posterior portion of the hard palate for this groove to be made of the same depth entirely across, but generally the laxity begins at the margin of the bone, especially at the median line, so that in most cases to have the edge of the plate displace the soft tissues uniformly, it is necessary to extend the plate a little posterior to this margin.

My course of procedure for upper dentures is to obtain a good impression of the jaw with any material whatever, being especially careful to have the impression extend a little beyond the margin of the hard palate, well up beneath the lip and cheeks and around the maxillary tuberosities. The material for the impression should be of such a consistency as will compress all soft or lax parts, or the model obtained from it should be pared down at the location of these parts. Then should be ascertained and marked out upon the model the exact location of the points where the laxity of the soft tissue of the palate commences. Posterior to this line an obtuse groove

should be made across the model, extending from the region behind one tuberosity to that opposite. This groove should terminate at each side, at a point where the edge of the plate will be well covered by the buccal tissues, thus leaving no possibility of the entrance of air beneath the plate. The depth of the groove must depend upon the laxity of the parts. It should be of the depth to which it is desired the plate shall displace the tissues.

By constructing a plate over this model, allowing it to extend posteriorly into the groove and well up beneath the lip and cheeks, it will not be apt to exert any perceptible influence on the surface of the mouth when there is no force applied to displace it, but immediately upon its displacement from contact with any portion of the surface a vacuum is produced, from the fact that all edges of the plate were slightly displacing lax tissues that will follow the edge downward, and atmospheric pressure be obtained over all firm parts of the jaw. When removal is desired the force can be broken by raising the lip, thus admitting air beneath the plate.

The ideal atmospheric pressure plate is one which offers the maximum resistance to displacement with the minimum of bad results from traction upon the tissues. By the above method a plain plate can be made to embody in a greater degree all of the advantages of a cavity plate, without the bad effects of the cavity.

A few patients cannot tolerate a plate extending upon or near the soft palate, on account of the nausea produced. In such cases the groove can be formed as far forward as is necessary, and the posterior edge of the plate made to consist of soft rubber, which from its flexibility will give an accommodating contact, to answer the same purpose as the yielding soft parts with the other form of plate.

This principle might be applied to an occasional lower denture, where the ridge is broad and firm, but such cases are rare.

Plates of any material can be made after this method. It is especially suited for continuous gum work, and for other metallic plates when made with rubber or celluloid attachment, all edges being made thick and rounded to prevent irritation of the soft tissues. It is also consistent to retain healthy roots in the jaw, as they do not interfere, and if situated at the four angles will improve the masticating capacity of the apparatus.

DENTISTRY IN FRANCE.

BY K. HOLMS.

Having noticed in the April number of "Items of Interest" an article by Dr. Guilford on "Dentistry in France," I think it would be unjust, for one who knows something of the subject and who has met with much kindness in France, to allow such misstatements to remain uncorrected.

Dr. Guilford states that, as far as he can learn, "England has but one dental college, and the rest of Europe *none*." He also asserts that "France has not even yet a regularly organized dental society." So far from this being the case, there was a dental college already in operation in Paris in 1880. This was the work of a number of skillful and conscientious dentists, not many of them medical graduates, it is true, but men who had the interests of their profession at heart, and who gave their time and best efforts to the work. This college is known as "*l'Ecole et Hôpital Dentaire Libre*," and is in the Rue Richer.

This, however, did not satisfy the medical men practicing dentistry, so another school was organized and opened in January, 1884, under the auspices of the "Odontological Society of France," and under the name of the "*Institut Odontotechnique de France.*" The directors have leased an old palace in the Rue de l'Abbaye, and in the same building are held the monthly meetings of the Odontological Society. This society, founded in 1878, with Dr. Andrieu as president, is the outgrowth of the *Union des Chambres Syndicales*, which dates back several years farther. Dentistry in France may have greatly changed for the better since Dr. Guilford made his short stay in Paris. Certain it is, that to-day the more advanced in the profession visit one another's operating rooms and laboratories, and a man's standing depends entirely upon his skill, and not upon his nationality.

Dr. Guilford's remark, that "the French dentists were very deficient in operative dentistry," would lead one to conclude that he was not fortunate enough to meet the leading men in the profession in France. As a slight evidence of their knowledge of operative dentistry, I have taken the liberty to translate two lectures, given before the students in the new dental school. Are there

many Americans who could handle the subjects with more care and accuracy?

The French can hardly be said to be "devoted to their professional advisers," when they are simply devoted to a house or locality, as Dr. Guilford innocently acknowledges farther on in the same paragraph.

As for the French as patients, those who "sit patiently" and "bear pain bravely" are the exceptions, and not the rule. On the contrary, until one has put before them the necessity for their co-operation in the work, as plainly as one would put it before an average American child, they are far more apt to be impatient, restive and troublesome.

DENTAL SCHOOL OF FRANCE.

Lecture upon the Resection of Teeth, by Dr. Andrieu, Clinical Professor at the School.

Dental resection is an operation which consists in cutting away some portion of a tooth. Whether it be cut off even with its neck for the adaptation of an artificial tooth, or only a part of the cutting edge of the crown is taken away, whether the irregularities are to be filed away, or the roughness of one of its surfaces smoothed, a cavity to be excavated to prepare it for filling, or the end of a root to be cut off, when it has been extracted, with the idea of re-implantation, it is always a resection.

Resection is practiced in a great number of cases, of which the following are the principal ones:

1st—Dental Erosion.

2d—Fracture of the Crown.

3d—Application of Pivot Teeth.

4th—Treatment of Dental Caries, preparatory to filling.

5th—Re-implantation.

Dental Erosion.—When the erosion is found upon the front teeth, or upon the grinding surface of the molars, if the roughness resulting from it is sufficient to be annoying, or to cause inflammation to the tongue, or even to give a disagreeable appearance to the teeth, when it is upon the labial surface of the crown, if it shows itself by a groove which is not deep enough to require filling, but which is so marked that the deposits of food in it would cause decay, then certain rules are necessary, which I shall give you later.

Fracture of the Crown.—A person, in consequence of some external violence, a fall, a blow, or biting upon some hard substance in the food, breaks the crown of one or several teeth.

This accident must be remedied. Two conditions present themselves: either the crown is injured to a considerable extent, too large a portion being lacking to think of preserving the tooth, yet not enough to make it necessary to extract the root for the purpose of inserting an artificial tooth, or the crown being only chipped, the deformity produced by the injury is so slight that it is proper to preserve the part that remains in the best condition possible.

In the first of these cases, it is proper to resect the whole crown to the level of the neck, and to fit the root to the artificial tooth to be applied; in the second, it is necessary simply to cut away the unevenness, the sharp angles upon the edge of the fracture which would only break anew, and finally to smooth the surface of the resection, so that neither the tongue, lips, nor cheeks may be irritated.

This is the general rule. But in the partial fracture of the crown there are two conditions to notice: either the pulp has been injured, or it has not.

If it has been, it is necessary, before going on with the resection and in order to avoid pain, to commence by extracting the pulp, then to fill the canal, either provisionally or permanently. If it has not been injured, you must try to avoid pulpitis by all the therapeutic means to which recourse is had in such cases, and never to go on with the resection until the dentine has become nearly insensible.

And at this point I call your attention to an important fact which has a bearing upon partial fractures of the crown, where the pulp chamber is not penetrated, as well as upon teeth attacked by erosion. This is, that the age of the patient has much to do with the success of the operation. It is imprudent to practice resection as long as the pulp chamber is very large in proportion to the size of the crown, and it is absolutely necessary to wait until the dentine becomes thick enough to shrink this cavity, and to protect the pulp against any risk of inflammation. I regard it as a good rule never to undertake this operation until the patient has reached the age of eighteen or twenty years.

I shall return to this subject, *à propos* of resection, as permanent treatment of superficial decay. I shall content myself with telling

you that slight cauterization, several times repeated, of the most sensitive parts of the dentine in question, tends to the production of the ivory around the pulp chamber.

Artificial Teeth.—When it is a question of putting in artificial teeth, on pivots, with bands or with caps, with or without clasps or springs, upon natural roots, it is necessary to shape the ends of these roots so as to admit of a perfect adaptation of the tooth.

The surface of the root should be clean, and free from any irregularities in which food might lodge; it should be even with or a little above the gingival margin, so that upon the labial face of the gums the artificial teeth may crowd the tissues sufficiently to appear to grow out of the gums as the natural teeth do, and so that upon the lingual side the plate or cap, if there be one, may be so hermetically applied that the adherence is perfect.

The most important point, indeed, when you undertake to make use of roots as supports for artificial teeth, is to make sure that food cannot penetrate between the roots and the teeth or plates and remain there.

It is unnecessary to tell you that when pivot teeth are in question, it is proper to fill the canals of the roots thus resected, for without this precaution these canals become the receptacles for all sorts of foreign matter, more or less septic, followed by a rapid deterioration of the dentine, with its train of annoyances, such as bad odor, purulent oozing, inflammation of the gingival margin, alveolo-dental periostitis, and sooner or later the entire loss of the roots.

Lecture given the 12th of December, 1884.

Dental Caries.—We have recourse to resection in the treatment of dental caries, either as a preparatory step before filling and for the purpose of facilitating access to the cavity, or as treatment pure and simple of superficial caries. As a preparation for filling, resection is practiced:

1st. In order to obtain access to the cavity and to facilitate the various steps in the filling.

2d. To remove all the deteriorated portion, and to shape the cavity so as to hold the filling securely.

Resection, as a means of giving access to the cavity, has given rise to numerous discussions, and all dentists do not agree upon the advisability of having recourse to it when the decay takes place upon the proximal surfaces of the teeth, particularly of the bicuspids or molars. There are, indeed, two theories upon this very interesting point in the practice of dentistry.

Some dentists pretend that resection is useless in obtaining access to the carious cavity, because one can always separate the teeth sufficiently with cotton, rubber or wood, or with various metallic appliances used for this purpose, such as the Jarvis screw, the Bogue separator, etc.

That it is always imperative to restore the injured portion by a filling which will give to the organ its original form, and in extreme cases to reconstruct nearly the whole tooth.

That it is the only proper means of preventing food from crowding between the teeth, from lodging there, and from becoming the cause of decay; in one word, to give back to the teeth their functions in their integrity. They hold that the enamel, being the principal protecting tissue of the tooth, should be respected as much as possible when it is intact, as resection is inadvisable when it takes away more than is necessary.

Finally, that a resected tooth is a deformity, and cannot be pleasing to the eye. Others maintain that after a certain age the temporary separation of the teeth is very painful, and in some instances inevitably results in alveolo-dental periostitis. That it is impossible to properly clean the interstices in which the fillings are in contact, and consequently impossible to prevent the circumference of the fillings thus made from deteriorating sooner or later, particularly at the necks of the teeth, under the margins of the gums. That the parts of the fillings that jut out beyond their attaching points cannot long resist the efforts of mastication, and very soon give way. That in order to fill properly upon the proximal surfaces, it is necessary to prepare a way sufficient to reach the carious cavity. That in order to have the filling secure it should not go beyond the borders of the cavity which it fills. That the only rational means of preventing the ulterior attacks of decay upon the circumference of the fillings consists in the frequent and thorough cleansing of the interstices in which the fillings are, and that resection, practiced according to certain rules, of which I shall tell you later, can only

be followed by this result. That, finally, a tooth cleanly cut is quite as agreeable to look at as a tooth from which a lump of gold or amalgam juts out.

You see, gentlemen, that the partisans of these methods have very excellent reasons for the support of their systems. My colleague, Dr. Bogue, defended the first of these systems with great talent in a remarkable paper read at the last meeting of our society, supporting it by numerous considerations, anatomical, physiological, and æsthetic. Without being so thoroughly a partisan of this method, which I propose to criticise at the next meeting of the society, I acknowledge that he furnishes many excellent reasons supporting his way of thinking; but I also see, and this is the most serious reproach I have to make to him, that he is far more theoretical than practical. Indeed, to make contour fillings upon the proximal sides of the teeth, it is first necessary to separate the teeth, which takes time, and is sometimes very painful; I may add that this separation being nearly always possible to obtain in the front teeth, I shall confine my observations to the bicuspids and molars.

In these cases you are obliged to build out the tooth with cohesive gold, and you already know, from the fillings that you have seen made with this gold, the large amount of time needed for it. I do not even speak of the inherent difficulties in such restorations when they are large; the use of the rubber dam has obviated many of them, and it is the operator's business to acquire sufficient facility to succeed in them; I only speak of the time required, and the fees which a dentist has a right to demand for such exact work.

I am convinced that, out of ten patients in any ordinary practice, you will scarcely find two who would be willing to give the time and money necessary for such operations. It is useless here to talk about those exceptional practices which permit the dentist to act entirely according to his own judgment, and to exact from the patients fees that are sufficiently remunerative; doubtless they exist, but they are very rare, at least in France, and even in Paris. I have in view, in speaking to you thus, the ordinary mass of patients who regard the care that they are obliged to give to the mouth, not as a luxury (that would be an exaggeration), but as a need which it is necessary for us to satisfy within very narrow limits, both as to time and expense. It is with regard to them, who are the great majority, that we must find out if the restoration of contour is the

most rapid, the most efficacious, and the most practical means of preserving the teeth, and whether it is the one that should be generally adopted.

The second method, which has been followed largely in France, and which has been abused to such an extent that whole dentures have been lost through it, has been defended in America by a very remarkable practitioner, Dr. Arthur. It is practiced by many dentists who use soft, non-cohesive gold; I often have recourse to it myself, and from a practical point of view I can see great advantages in it in a large number of cases. It is simply a question of opportunity. This, gentlemen, is my conclusion. If you adopt either of these methods exclusively, you are quite as likely to make failures with one as with the other, but both of them can be made to render great service when used with discrimination. You must judge for yourselves in just what cases each one should be employed. As a general rule, I should say that upon the proximal sides of the molars, when the carious cavity is small, situated far enough from the neck of the tooth, when the walls are strong enough to support the filling securely, when the crowns touch in such a manner that, the filling once made, food cannot crowd in between them, when one can obtain a sufficient temporary separation, either with the Jarvis or Bogue separator, in order to succeed perfectly in filling, then it is better to restore the contour, that is, to restore the original form of the tooth through replacing the lost portion by an equal portion of filling substance.

On the contrary, when the cavity is large, the margins of its orifice thin, chipped and incapable of affording solid anchorage for the filling, and it seems evident that however good the work may be it can be only very short lived, then, in my opinion, there should be no hesitation. It is proper to resect the margins of the cavity considerably, so as to form of that which remains and the filling material a surface like an inclined plane, and so perfectly smoothed as to make it impossible for it to retain food, and so directed as to permit of the easy cleansing of the interstice, which should have the form of a V, with the top toward the gums. This is the rule, gentlemen, which seems to me proper to adopt in order to be sure of good results.

It is, moreover, the one which had the strongest advocacy in the discussions which took place on this subject at the International

Medical Congress in London, and the one which is followed by all practitioners who have no exclusive system, and who have the best interests of their patients at heart. Besides, it is quite evident that there are exceptions to all rules, but you will understand that it is impossible to enumerate them all in one lesson, and that only the wisdom and experience of the operator can indicate to him his line of action.

I now come to the preparation of the cavity itself, the removal of the diseased portions, the making of points of anchorage, and finally, the shaping of the cavity in such fashion as to hold the filling securely. But I do not wish to intrude upon the domain of your professor of operative dentistry, so I shall content myself with telling you, in a general manner, that the decayed part should be, if possible, entirely removed, particularly around the edge of the cavity; that if you are obliged to leave some portion of softened dentine, as it sometimes happens, to avoid touching the pulp, it should only be at the bottom of the cavity, and finally, that the edges of the cavity should be strong enough to make a solid support for the filling.

DENTAL SOCIETIES AND DENTAL LITERATURE.

READ BEFORE THE EIGHTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

BY C. J. ELLIS, D. D. S.

It will be seen that this paper is entitled "Dental Societies and Dental Literature." It may be thought that this necessarily implies a division of subjects, and yet when we think the matter over they appear inseparable. The one chronicles the work of the other. And here let me make what may seem a radical statement. We could wipe out all dental colleges and text books, and get along better than if deprived of all dental societies and dental journals. How many dentists to-day consult dental text books and college note books as compared with the continual reference to the work of to-day, as mirrored in society meetings and dental journals. Dental therapeutics has no history or solid foundation, but is rapidly acquiring one, as the investigations of individual members are made public in society meetings and reports. All our present knowledge of pyorrhœa alveolaris and its treatment is gathered from

the few who have made it a special study and given us the results in dental societies and journals.

When I reflect upon the great disadvantages under which dentists labored twenty-five or fifty years ago, I am thankful for the privileges we of to-day enjoy, and the benefits derived from the constant interchange of ideas. The more professional one becomes, the more ready is he to impart knowledge ; hence the multiplication of societies and journals.

One great advantage of the professional man in the city, is the ability to call upon brothers at his elbow for information. How many points in dentistry have been developed by one man only! It is a hint here and a suggestion there, added to the original idea, that makes complete success. This is constantly illustrated by the remarks of successful dentists, whom you may frequently hear say: "I obtained that idea from Dr. Blank." And yet, notwithstanding all the benefits to be derived from society meetings, it seems to be but an intelligent minority that avails itself of their privileges. We can but hope that, as dentistry grows older, a larger proportion of the young men coming into the profession will identify themselves with professional societies. Many who would otherwise attend are doubtless debarred by a sense of their inability to secure membership without a preliminary examination.

Much of the benefit that is derived from society meetings is due the journals, for they give to the profession at large the thoughts that otherwise would be received by but the few in actual attendance. Reading these reports, it is easy to note the dogmatic positivists and the speculative theorists, always ready to split a hair and then to spend a year in determining the largest half. Such men are to be found in every society.

Any society holding monthly meetings can keep a firmer grasp upon a subject than is possible when the meetings occur only once or twice a year, and when there are so many topics to discuss. I wish some plan could be devised by which we could know what direction discussions will take at the next meeting, so that we might be adding to our knowledge of those particular subjects and be enabled to discuss them understandingly.

In all society meetings there is a tendency for certain individuals to monopolize the time to the exclusion of others who might be induced to speak, and thus make the discussion more general. This

may be of benefit to the talkers, but it is not for the best interests of any society. The more general discussions are, the greater the amount of good accomplished. There is something audacious in the confidence that allows one or two speakers to discuss and dismiss subject after subject, while a score of members say nothing. This may be unavoidable, owing to the modesty inherent in the dental bosom, but, I say again, it is not for the best interest of any society. A question should be of sufficient interest, if debated at all, to call out half a dozen members, and all sides should be discussed, and that very briefly.

There may be those here who, after looking at the title of my paper, infer that I shall attempt to review, in a general sense, the quality of the work we get in our publications. Such was not my intention, and yet I will own to having positive opinions of some of our writers. I never read one of Dr. Beers' graphic articles in *The Century*, which so vividly portray out-door sports in Canada, but I congratulate myself that he is one of us. And not long ago I noted a thoughtful article in the INDEPENDENT PRACTITIONER from the same pen. But I will not follow this line of thought farther now, for it would take a separate article to specify those worthy of mention as writers.

General literature to-day is dotted with contributions from the medical fraternity, and I hope I will live to see an equal number of dentists known as writers. The more widely any dentist is known for his culture, the more the profession is elevated. Dentistry of to-day is but in its infancy. I mean not only as to the improvements, but its hold upon the public. We have a long fight, gentlemen, to earn the whole confidence and esteem of the public. We cannot do it by legislation, or by the so-called "regular" system, as with the medical fraternity. Rather must it be accomplished by earnest effort in all our societies and journals, to educate ourselves aright, to stimulate each other, to cultivate wide and liberal views on all questions pertaining to our profession, and so to bring the public gladly to acknowledge the dentist as in truth a professional man.

In every town and village the dentist should deliver practical lectures before the schools, and so educate the youth to a care of the teeth. There are some communities so educated, but they are few. The public at large has little care for their teeth, and we as dentists are responsible for this condition if we do not try to educate them

out of it. The colleges are doing their work, but we as individuals have a greater one. I see the evidence every day of dental ignorance, the seed of which was sown years ago by ignorant dentists. If we admit that the life and progress of dentistry is in the keeping of the societies and journals, let us as individual members at least be content with no half-way work or measures, but each strive to do his whole duty by both.

A GUM-CHEWING VARIETY.

BY C. M. WRIGHT, CINCINNATI, O.

In a three-minute paper read before the Mississippi Valley Dental Society, March 5th, 1885, I suggested that if the "Development Hypothesis" of scientists be true, then we might, perhaps, by taking notice of it, be able to obtain a broader view of some of the laws influencing the destruction of the human teeth. The paper was effectually "sat upon" by prominent gentlemen, who slightingly referred to it in the discussion which followed; yet from all parts of the room, and during the entire discussion, vague hints on the value of Chewing-gum as a means of improving the organs of mastication, were constantly flying about. Now upon what other ground than that of the Development Hypothesis that I referred to can the members of the Mississippi Valley Dental Society base a theory of the value of Chewing-gum? Although the profession at large does not care much for philosophy, it accepts, of course, the influence of the laws of inheritance, selection, development, etc., as applying with wonderful significance to the morphological peculiarities of the animal world in general. And while a few seem to resent the attempted application of these laws to man and to the teeth of man (so high an authority as Dr. J. Taft, at this same meeting above referred to, positively denied that these laws applied to man), still, when we talk about Chewing-gum in open and serious debate, we tacitly admit that a changed condition of the human jaws, viz.: from a partially passive condition caused by soft food and the lack of necessity for rigorous chewing or employment, to high activity caused by the use of chewing-gum and the fascinating necessity of chewing it like mad, will cause the organs to *immediately begin to undergo a*

change in structure, and this is the basis of the hypothesis we have referred to. But, as was stated at the meeting, we want to talk about *practical* things and practical methods. We prefer, too, to build and accept theories that have a practical, every-day sort of plausibility about them. We do not care particularly about the *facts,* if the *theory* is plausible. We do not want to worry our brains about principles or laws, if we can get ready-made theories that will explain, in a popular and agreeable way, notions which we think we can safely teach our patients. We have had a long run of oatmeal porridge, cracked wheat, and unbolted flour. The public has taken our doses of this unpalatable but healthy food *ad nauseam.* The joke about Scotch men and English horses is classic. We have put phosphate of lime, too, bodily into teeth, by assimilation and by peripheral absorption, although we have neglected scientific analysis of the teeth in the laboratory. We have not asked chemistry to take the tooth before and after taking phosphates, and to give us the pictures. We have not questioned the capacity of observation which has seen fire fly from a tooth when struck by an excavator, after only a few months' use of oatmeal porridge by the patient—a tooth which, before, was soft as butter. Theory has said, "the tooth contains now more phosphate of lime," and we have said it, morning, noon and night, ever since, without once reflecting upon the *facts.* The medical profession has shifted the phosphates, in rather a promiscuous way too, in the bones of her patients. Old men's bones break easier than children's bones, because old men's bones have more phosphates. Surgery says: "Young people's bones unite more readily after fracture than old people's bones, because there is less phosphate in young bones." "Pregnant woman's bones contain less phosphate of lime, because the phosphates are taken out of her bones to enter into and build up the bones of the fœtus."

These are our facts (?), which have become like axioms, notwithstanding the experiments of Chossat and others.*

*This observer determined by numerous nutritive experiments on birds, that by withholding the lime salts from their food, not only the mineral but the *animal* constituents of bone were uniformly diminished. Reference might also be made to the observations of Dr. Stark, who after numerous experiments concludes "that the amount of earthy matter in healthy bones is nearly uniform over the whole animal kingdom." Von Bibra also found that the proportions of animal and earthy matter are very nearly the same in a fœtal and adult bone.

But we, as a profession, and the people, too, are getting tired of these statements. We want something fresh, something startling, something popular, and plausible, and new; and what could be newer or more popular and plausible than the theory about chewing-gum? Throw away your oatmeal, and chew gum. If we can only prevent cranky individuals from raising the hue and cry, and pointing out some blood-poisoning or cancer-inviting qualities in Spruce or Tolu, we may safely and unthinkingly go down to the next generation—on chewing-gum. Happy thought! And here's your theory to back you. Constant exercise of teeth and jaws excites extra local blood supply; extra blood supply means extra nourishment; extra nourishment tends to increased vigor and development; increased vigor and development means better health and less disease, better resistance to acids and the entire discomfiture of the bacteria. But to get the full benefit of this we must encourage the development for some generations, and to encourage this we must study the laws of Inheritance and resort to artificial sexual selection. Our children must be encouraged to chew gum. Intelligence will direct us in this. Chewing tournaments, or matches, or rinks, can be established. Supervision can be exercised, and the best boy chewers and the best girl chewers can be gradually withdrawn from the feebler chewers, and made to associate together. The gum-chewing young man and the gum-chewing young woman will mate in time. During courtship they would chew gum. After marriage they would chew gum, especially during times of emotional excitement, and a proportion of their children would, we have every reason to believe, inherit a capacity and a tendency toward gum. Here, again, our supervising influence should come in. The most vigorous gum-chewers, those whose jaws showed the distinctive evidence of structural development, should be selected for association with other children of other gum-chewing parents, with like structural development, and the feeble chewers should be prevented, as far as moral and strategic influences go, from matrimony. I need not go on. Any one can imagine what a few generations would produce. We should undoubtedly have a variety or species of the human race with fine organs of mastication. Isn't this *practical* enough for the Mississippi Valley Dental Society?

But a word of warning. Let us be sure that this is the habit

that will produce the variety before we risk the existence of our specialty. Therefore I call upon the scientific readers of the INDEPENDENT PRACTITIONER to busy and interest themselves in gathering the data of gum-chewing. Let us have evidence that gum-chewing will save teeth before we start our patients on the fascinating habit and begin the annihilation of ourselves as dentists.

References.—Herbert Spencer, Charles Darwin, Ernst Haeckel, Oscar Peschel, a late paper by Alex. Graham Bell upon "The Formation of a Deaf Mute Variety of the Human Race," Coleman's Ko-Ko Tolu, et al.

ADDRESS OF WELCOME TO THE DENTISTS IN ATTENDANCE UPON THE SEVENTEENTH ANNUAL MEETING OF THE SOUTHERN DENTAL ASSOCIATION.

BY L. A. THURBER, D. D. S., NEW ORLEANS.

Mr. President and Gentlemen:

By request of the committee of arrangements, I have the distinguished honor of welcoming you to New Orleans; to the same hall where, fifteen years ago was held a meeting of the Southern Dental Association of the most gratifying character. Year after year we have seen this body steadily working to advance the destinies of a profession which honors every one of its members. To crown its efforts in the path of progress, this session is held in this Crescent City, chosen at this time by the civilized world as the grand exchange and point of display of all that can improve and benefit the condition of man. As dentists, as men proud of our calling, we have a right to a place in this congress of human ingenuity. It is appropriate that we should meet here and show the world the accomplishments of an art founded on the highest principles governing science, and made famous by American brains and American hands Ignored by the learned professions less than forty years ago, we, to-day, stand on a footing of equality with any craft whose mission is the alleviation of human suffering. And more than this, we are a recognized, independent, liberal profession. Our meetings are always fruitful of rich results. The more advanced tender freely the knowledge they possess, the experience they have gained, to the more humble or less privileged, with a generosity and kindness characteristic of members of one family. To a gathering of such loyal men I am here to say WELCOME! Wel-

come with the hope that the deliberations held here will add one more stone to that monument which you are erecting to your profession, and which is consigned to immortality.

To you who have assigned me this honorable task, I will only say, if I have not welcomed your visitors in language more eloquent, with thoughts of greater depth, I indulge the hope that you will forgive my short-comings, and only remember the sincerity of my purpose.

Reports of Society Meetings.

SOUTHERN DENTAL ASSOCIATION.

SEVENTEENTH ANNUAL MEETING, AT NEW ORLEANS.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY MRS. M. W. J.

(Continued from page 313.)

SECOND DAY—AFTERNOON SESSION.

The subject of Pathology and Therapeutics was taken up, and the paper of the President, Dr. A. O. Rawls, on Pyorrhœa Alveolaris, was discussed. The following is a brief *resume* of the paper:

After enumerating the different theories of causation, local and systemic, salivary and seruminal calculi, fungi, bacteriæ, etc., the symptoms of the disease were minutely described. The first subjective symptom was pronounced a sense of fullness or of impactedness, followed by a soreness or an elastic feeling of the gums under percussion; then follows a slight thickening or prominence, accompanied by a bluish tint, indicating increased size of capillaries, a disruption of the tissues being succeeded by the red line usually regarded as the first distinctive sign of the disease. With the deposition of irritants dissolution of continuity continues, and the periosteum is laid bare and melts away. The points most liable to attack are those marked by greatest amount of gum tissue, or about peculiarly shaped, or irregularly placed teeth. The susceptibility to attack, and the progress of the disease, are influenced by the contour of the parts, the habits of the patient, the nature of

the cause, etc. The direction and rapidity of the advance under different types of alveolus in breadth and depth, as attacking anterior or posterior surfaces or septums, and the aspect of the gum under these different conditions were carefully considered; also the influence of the mode of life of the patient, whether active or sedentary, temperate or otherwise. The environments are also a factor, as seen in the effects of the use of mercury by early settlers in the west, and of salt, as in the abnormal cravings caused by malarial poison, or the salt meat diet of sailors and laborers, the disease, in its typical form, being considered by the writer directly traceable to these sources of causation, and transmittible in hereditary form. Though acute ptyalism passes rapidly away, the effect upon the tissues is permanent and transmittible, the typical form of Pyorrhœa due to the use of mercury or of salt not being curable. This form does not appear till middle age, caries also being held in *statu quo* by this condition of the system, secretions, or tissues. When transmitted, it becomes apparent in childhood, and is very difficult of control, the bony structures melting away, though the gums hold their position for a time. When thus transmitted it appears independent of all local causes, as tartar, fungus, or any external irritant, a predisposition growing into dyscrasia. In the second or third generation it may be checked.

But one mode of treatment is of any avail, viz : Thorough removal of all deposits, cleansing from debris, washing with antiseptics, as Listerine, and leaving a clot of blood, nature's own remedy, to protect the parts. The removal of the deposit is often a work of great difficulty, and requires, upon the part of the operator, a steady hand, cool head, delicate sense of touch, ability to detect the difference between live and dead bone, etc. The necessary instruments were described, and the mode of manipulation. The paper closed with the suggestion of the following points for discussion :

1st. Are deposits of salivary calculus the cause of or pathognomonic of Pyorrhœa ?

2d. Is Pyorrhœa infectious ?

3d. Where the disease is common to a family, is it due to infection or heredity ?

4th. Is there a fungus peculiar to this disease ?

The paper elicited an interesting and spirited discussion.

Dr. Walker—Regretted the absence of Dr. Riggs, the pioneer in the scientific recognition and treatment of this disease, which has been the *bete noire* of the profession for many years. He fails in effecting cures by surgical operations alone, but thinks the disease requires concurrent local and systemic treatment.

Dr. Reeve, (N. C.)—It is most essential to know the cause of the disease. Pyorrhœa is rather a symptom than a disease *sui generis.* He considers that it has its inception in alcoholic stimulants, which increase the amount of uric acid eliminated. He has had the calculi analyzed, and found them to be almost pure uric acid. The deposits occur farthest from the direct influence of the heart's action, and in parts of low vitality. It is confined to males, or if existent in women, it is not until after puberty. The remedies required are those which decrease the elimination of uric acid, as atropine, digitalis, acetate of potash, cod liver oil, etc. Negroes never are attacked by it.

Dr. Morgan, (Tenn.)—According to my experience, negroes have it as frequently as white men, and females of all ages as often as men. I have, at the same time, treated a mother with a suckling babe, and her daughter fifteen years old. I know that for three generations no alcohol had been used in that family, yet Pyorrhœa had existed from grandfather down. It is highly commendable to analyze the deposits, and I am glad to learn of such investigations, but I have never before heard the disease attributed to uric acid. The general health is often broken down, and constitutional treatment is required. It is often confounded with scurvy, and indeed these are some points of resemblance.

Dr. Taft, (Cincinnati)—There is a great difference of opinion as to the origin and cause of Pyorrhœa. There is connected with it a condition of the system in which the tissues readily yield to irritants; there is a want of elimination. It occurs where the teeth are not properly exercised, and there is a consequent lack of nutrition. Imbibition of pus takes place, causing a degree of blood poisoning, or mild pyæmia. Systemic conditions cause the disease and are also caused by it. Local treatment is of no avail until the general conditions are rectified and the system toned up. In the treatment of this disease we should study principles rather than remedial agents.

Dr. J. A. Robinson, (Michigan)—In my old age I have given to

the profession "The Robinson Remedy," a specific for this disease, which will secure results with one treatment, or in twenty-four hours, that would not seem possible. Employing it in the worst cases, the pockets will half close up in one treatment, and the gums hug the teeth after the second. A third application is never required. Of course all deposits must first be thoroughly removed, and loose teeth ligated. The remedy is carbolized potash; equal parts of crystals of carbolic acid and caustic potash. If they do not deliquesce, add enough water to make a creamy paste. If it crystallizes afterwards, heat the bottle and again liquify it. Apply it to one tooth at a time on a small rope of cotton dipped in the bottle, and laid on a napkin to absorb the surplus. Cut off the proper length for a tooth and apply it, leaving it in position only while applying a piece to the second tooth. He described a number of remarkable cures wrought with it.

Dr. J. R. Walker—Hopes that the Robinson remedy will do all that its originator claims for it. But different cases require different treatment. When one remedy fails we should try another. He has found the following very efficient, after thorough surgical treatment.

Carbolic acid,	℥j,
Tincture Iodine,	℥j,
Glycerine,	℥x.

Mix well, and add six parts of Labarraque's solution of chlorinated soda. It becomes colorless and more volatile than water; then add ℥j to ij of the crystals of the chloride of zinc, when it coagulates and is strongly astringent. Apply this with the thin end of a toothpick, shaped like a spatula, that will reach into the pockets. In my hands it accomplishes almost what Dr. Robinson claims for his remedy. The dark-blue blood is changed to a lively red; granulations begin at the bottom, and the pockets fill up readily.

Dr. Morgan paid an elegant tribute to the memory of Dr. Prothro, deceased.

Adjourned to 7.30 P. M.

SECOND DAY—EVENING SESSION.

The President in the chair. The discussion of the paper on Pyorrhœa Alveolaris was resumed.

Dr. Harlan, (Chicago)—Dental practitioners in inland cities have comparatively few opportunities for studying the teeth of sailors on the high seas; but with them, as with the Irish laborer, the condition of the mouth is more likely to be due to the absence of all ideas of cleanliness than to the deprivation of vegetable food or the use of salt meats. They have salivary calculus, but seldom Pyorrhœa Alveolaris. Such theories carry their own refutation with them. The condition of the gums after ptyalism does not resemble Pyorrhœa. Mercurial diathesis may be transmitted, but acute ptyalism is not a hereditary disease. It was well said in the paper that escharotics should not be employed, but rather that germicides and antiseptics are beneficial. In mouth-breathers the palatal aspect is affected. Salivary calculus *per se* has nothing to do with the inception of Pyorrhœa Alveolaris. After removal of the calculus the peridental membrane may remain well attached, so that the probe cannot pass. Pyorrhœa deposits are not continuous; they form little islands. Deposits are more frequent upon the labial and buccal aspects than between the teeth. If they appear on the mesial or distal surfaces it is when the adjacent teeth have been extracted. Thorough removal of all deposits is absolutely essential. The edges of bone must be cut away and scraped or burred out. Failure in removing the debris is often the cause of a non-cure. To secure this it is sometimes necessary to make a transverse slit in the gum, exclude the saliva and inject peroxide of hydrogen in full strength. The blood-clot will furnish a protection, but it is not transformed tissue. The disease is a difficult one to treat, and the cases which get well under simple treatment are usually not pyorrhœa at all, but salivary calculus. We need something to destroy the bacteria. True Pyorrhœa is infectious. This he had demonstrated in one case by injecting pyorrhœal pus under healthy gum, and thus inoculating the disease. Instruments should be cleansed in preparations that will destroy the spores. We must beware of over-treatment, and allow nature a chance to do her work.

Dr. Jas. S. Knapp, (New Orleans)—Pyorrhœa is not a new disease. It is older than Dr. Riggs himself. It is not caused by tartar, for if this were the case, all who have tartar would have Pyorrhœa. It is the lack of boldness in operator and cowardice on the part of the patient that causes failure, by preventing the thorough

removal of deposits. His first application is chloride of zinc; after a few moments this is washed out and followed with tincture of iodine. This may cause discoloration, but it is only temporary. Dr. Atkinson claims that lost alveoli can be reproduced, but this is absurd. Perhaps it is not impossible, but it is at least doubtful.

Dr. J. R. Walker—Dr. Riggs was the first to apply the surgeon's maxim, " cut beyond the dead line." Modern success in treatment is largely due to him.

Dr. A. O. Rawls—My views have been misconstrued. I contend that when the process is broken down and denuded of its membrane, restoration is not possible. Inflammatory action may be checked, but the conditions are still present. Nutrition is resumed in the soft tissues, but not when the connection of the tissue with the tooth is broken. I have never known a typical case that could not be traced to mercury or salt. I have made it my business to hunt up and study the cases of sailors and laborers in this connection, and invariably find these conditions present. The theory may be wrong, but a strange coincidence certainly exists. I do not contend that mercury will invariably produce these conditions, but that when these conditions do exist they are caused by mercury. Mercury certainly does produce conditions that render possible this peculiar disease, so difficult of cure. Fungi and bacteria follow the destruction of tissue; they are the resultants, not the starting points. Restoration of tissues is the essential thing, not the killing of vegetable growths. Remove dead bone and debris, and give protection to the parts. This is all we can do.

(An interesting and animated *tri*-alogue ensued on the nature of heredity, with Dr. Rawls on one side, and Drs. Taft and Morgan on the other, the former maintaining that heredity in the tissues resulted from an impression made upon the molecules, the latter insisting that heredity was of typical peculiarities only.)

Dr. J. R. Walker—The more thoroughly we study causes, the better we can treat results. Dr. Rawls' observations led him to consider mercury and salt as prime factors of causation. My own observations point to *butter* or *grease*. I desire to ask Dr. Rawls to look for the results of fried grease or cooked butter. Deposition of calculus indicates a misdirection of nutritive elements.

Dr. Fountain, (Texas)—Pyorrhœa is very prevalent in the Brazos

bottoms, where malaria prevails and mercury is much used. Most of my Pyorrhœa patients say they have been salivated.

Dr. Patrick, (Belleville, Ills.)—A concatenation of circumstances bringing about certain results may be considered as accounting for those results. That accidental physical peculiarities are transmitted, there is no doubt. I know of one family where, for several generations, even to first cousins, the two first fingers are missing. Why? We do not know. It is so; that is all. The fact is undoubted, but the reason is in darkness.

Dr. Robinson—This is especially the case with the teeth. I know of one family where, for four generations, there are no superior lateral incisors.

Dr. Teague, (S. C.)—Cited the case of a certain family in South Carolina, the members of which have been edentulous for generations.

Numerous other illustrations of the principle of heredity were related by members, after which the discussion was closed

Dr. J. A. Robinson, of Jackson, Mich., read a paper, entitled "How to Increase Your Business," a paper replete with sound advice, based on the results of nearly a half century's experience in the dental profession. Starting with the suggestion that to outstrip others in the race for fame and fortune we must do what others are not doing, the first piece of advice given was to read all the journals, in order to know what has been done, what is being done, and what is left undone.

The ratio of success will be in proportion to the permanence of the work done.

The salvation of the natural teeth should be the principal object, artificial substitutes serving only to make things bearable, and as a last resort.

Among the fields as yet comparatively uncultivated by the average dentist, and open to the young man, he named the study and treatment of diseased teeth and gums, the setting of artificial crowns, correcting irregularities, etc.

As a means of gaining increased patronage, he especially considered the cultivation of the fraternal feeling in the profession, our confidence in each other attracting the confidence of the laity. It is not enough to believe in our own abilities; we must make the world believe also. The way to do this is by modest advertising,

and the most dignified means is the publication of information for the people as to the value of the teeth, the rates of compensation being in proportion to the understanding of the value of the teeth, and of our services.

The hour for adjournment having arrived, discussion of the paper was deferred until the next session. Thursday being dentists' day at the World's Exposition, and Friday devoted to clinics and the exhibition of appliances, the Association adjourned until Friday evening.

AMERICAN MEDICAL ASSOCIATION.

SECTION OF DENTAL AND ORAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY "MRS. M. W. J."

(Concluded from page 330.)

SECOND DAY—AFTERNOON SESSION.

Oscar J. Coskery, M. D., of Baltimore, read a very valuable paper, entitled "A Case of Sarcoma of the Lower Jaw, with Successful Removal."

Before reading the paper Dr. Coskery made some explanatory remarks, and exhibited a cast of the left side of the face and neck, as before the operation, a cast of the jaws showing the articulation of the teeth (which were very much displaced by the growth of the tumor, with immense enlargement of the lower jaw), the jawbone itself as removed with the tumor, photographs of microscopic sections of the Sarcoma tissue, etc. The paper was simply a record of the case, with explanatory notes, as follows:

The subject was Pierre King, a colored boy, fifteen years old, a native of Maryland. His mother had, for several years, noticed a gradual enlargement of the left side of the lower jaw, the teeth becoming more and more displaced. A sudden and rapid enlargement of the gland under the jawbone frightened the boy, and he applied for admission to the hospital.

The inferior maxilla was found to be enormously enlarged, the teeth displaced in all directions, the gland very much enlarged, the tongue crowded over into a narrow groove on the right, and the oral cavity much depressed. He was admitted to the hospital on

the 1st of May, 1882. On the 15th of May he was chloroformed and the operation performed. An incision of the soft tissues was made in the median line of the lower lip to below the chin, thence over the most prominent portion of the tumor outwardly to the angle of the jaw, thence upward. The flap was dissected off and turned up, exposing the growth. The facial artery at this point of the operation was cut and ligated. The right central incisor was next extracted, and from that point the bone was sawed through. The soft connective tissues were next severed, and, with strong traction, the neck of the tumor gave way. With forceps an attempt was made to tear the whole mass out, but the jawbone broke. The bone forceps were finally used to wrench it out, which was finally done with no very great hemorrhage. In cutting out the enlarged gland, profuse venous bleeding followed, and it was found that a branch of the external jugular had been cut. This was ligated at both ends, and the flap replaced in position and covered with dry lint, with a bandage over all. The boy did well from first to last; the cut healed kindly, Listerine being used throughout the whole course of treatment to keep the wound aseptic. He was discharged from the hospital twenty-one days after the operation, with only one point of suppuration left for drainage.

A microscopical examination by Dr. Aug. Hoen showed the tissue to be a dense, white fibrous stroma, with dilatations filled with spindle-cells, closely packed in some portions, quite loosely in others, each cell having a single oval nucleus. The photographs show microscopic sections cut on different planes. The cells constitute true fibroid sarcoma, with no tendency to cystic degeneration. Dr. Coskery saw the boy two years after the operation, but failed in his efforts to obtain a photograph. He is employed as a farm-hand, and supports himself. He masticates quite comfortably, and has had no trouble since his discharge from the hospital. There has been no reproduction of bone, but the anterior portion of the lower jaw has been drawn towards the vacant space.

Dr. J. L. Williams—How frequent are cases of this character?

Dr. Coskery—Epulis involving the lower jaw, or fibroid tumors seemingly non-malignant, commencing in the jawbone itself and not in the gum, are very seldom met with. In this case there was no tendency to degeneration, or to a cystic form. This particular form is exceedingly rare; indeed, it is scarcely mentioned by authors.

Dr. Baldwin—The thanks of the section are due to Dr. Coskery for his valuable paper. It will probably be many years before a similar case will come before us. I would like to inquire as to the probable permanency of cure. Its doing well two years later was fairly conclusive that the patient had entirely recovered, with no probability of recurrence. I should, however, feel suspicious of possible sarcomatous infiltration in remaining portions. It is very important to guard against the desire of saving too much tissue. We must cut boldly and be sure to reach healthy tissue.

Dr. Williams—In this case the operation would appear to have gone quite beyond the range of disease.

Dr. Baldwin—We are prone to try and save as much as possible, but nature will reproduce healthy tissues more readily than she will remove diseased tissue.

Dr. Coskery—There is, of course, danger of recurrent fibre in fibroid sarcoma. All of the bone involved must be removed, as was done in this case, from the median line to the condyle. In a case of sarcoma of the chest, I operated seven times for recurrence, and the patient finally died with a seven pound sarcoma. But in the case here recorded I did not expect a recurrence. It is useless to remove only part of the affected bone, but the lower jaw being in two halves, in removing from the median line to the condyle the entire bone was removed.

Dr. J. R. Walker exhibited some casts of remarkable cases of irregularity, explaining the methods employed in regulating, with casts of the teeth after the operation. Also, what is probably the youngest tooth ever filled, a superior temporary central incisor, first filled when the child was eleven months old, and the tooth but two months erupted. At the age of five years the tooth was refilled with gold. The tooth erupted with a yellow spot on the labial surface, which soon developed into a cavity of decay. The permanent tooth which replaced it is marked with a similar, but white spot, which, however, has not decayed, the boy being now eighteen years old.

Discussion of the paper read by Dr. Williams at the first session was declared in order. The following is the argument of the paper, the title being "The Alternation of Rest with Effort."

The paper was prefaced by the remark that, when a student, he heard old Dr. John C. Warren speak of the grateful relief afforded

the eyes, when fatigued from long continued effort in surgical operations, by the momentary rest afforded by simply raising them and letting them rest on some object in a distant part of the room, or, if the operation would permit, of stepping to the window for a moment.

More recently, an eminent American oculist has written of the great injury done by continuous application of the eyes after they become fatigued. The same is equally true of all the other organs of the body. The idea represents a principle. The organs need rest. The old idea that "exercise strengthens," without any other consideration, that the longer we exert them the stronger they grow, represents a false principle. On the contrary, fatigue to exhaustion produces weakening and debility. It is the same with all occupations and with all the organs. The student, the professional man, the oarsman, the pedestrian, may exert himself continuously, till suddenly he finds that his strength, whether mental or physical, is gone forever. Too long and too continuous labor in any one department will shatter the nerves, and utter prostration will follow, or the individual may, as has been the case, fall dead at his post. In our own department we must remember, too, that we exhaust others as well as ourselves. We must recognize the fact that we too often submit our patients to too long and too continuous fatigue, and that days and weeks may be required to recover from the effect, even if more serious results do not follow. The danger is not in the amount of fatigue endured, nor in the severity of the exercise, but in the long continuance of labor after fatigue is felt, passing beyond the point of fatigue to that of exhaustion, either of some particular organ, or of the entire system. The point urged is that, if possible, a man ought to rest just when he is tired. Alternate labor with rest, and, at the same time, let our patients do the same thing.

Dr. Walker—The subject is very important and the advice very valuable, but it is exceedingly difficult to heed.

There are different classes of men in our profession. One class works only for money; they do not get over-fatigued and their operations are not tedious; they go through a patient in a hurry, but they make every moment pay well. There is another class whose interest in humanity and in science outweighs the desire for pelf. This class of men continually overwork. They need advice, but they

seem unable to heed it. They are usually men of strong sympathies. In their desire for success, and in their sympathy for their patients, they wear themselves out, and they die poor. They cannot find time to make money, nor take time to rest.

Dr. Baldwin—In my studies as a medical student I gave particular attention to the eye and its diseases. The principle laid down in the paper is specially applicable to the dentist. We are obliged to work in a very strong light, at a very short focus, for a very considerable length of time. These conditions are trying to the eyes, and we consequently find very general complaint among dentists of trouble with the sight. This is very often attributed to the direction from which the light comes, a subject which is much discussed in our societies, there being a great difference in opinion on this as on all other subjects. I believe, however, that this occasional brief rest for the eye will be found very beneficial.

Dr. Williams—I have, for many years, been in the habit of occasionally looking away from my work, letting the eye rest for a moment on some grateful object, and believe that the result proves the practical utility of the principle. I have no weakness of the eyes, and no irritation—only the change natural to increasing years. It is simply obeying a rule of nature. A child when tired with running, naturally sits down to rest the limbs. The same principle applies to the eyes.

Dr. Marshall—No men tax their eyes more than the dentists, and none have such poor eyes, though all do not know it. I was born with astigmatism, but was not aware of it. For years I suffered with very severe headaches ; attributed it to the stomach, but could obtain no relief. Happening to be in the office of an optician, I accidentally noticed, in looking at the radiating lines of a circle, that the horizontal lines appeared blurred; they looked gray instead of black. I then had my eyes thoroughly examined, and found that I had used and abused them all my life. The only wonder was that I had not suffered from severe inflammation. I had my eyes fitted with suitable glasses, and have worn them ever since, taking them off only when I go to bed. As the result, instead of having headaches two and three times a week, I have it perhaps only once in two months. The glasses afford artificial rest. I had attributed my trouble to overwork, and to my chair; I then used an old Archer chair which I changed for an S. S. White, pedal lever; but though my

general health improved from better conditions for work, my headaches still continued until I got the right glasses. I also obtain great relief from the application of the principle laid down in the paper read. The eyes of nine out of ten dentists, if examined by a competent oculist, would be found defective from constant application to fine work at an unnatural focus, often twelve inches when it should be eighteen. It is a constant strain on the muscles. The headaches of the dentists can generally be attributed to the eyes.

Dr. Williams—There must also be a true understanding of the meaning of the word *rest*. It is commonly supposed that a change of occupation is rest; that is not my idea. A change is simply refreshing, but rest is dispensing with all application. If we look straight at one object a long time, and then look at another, the eye does not rest, though it is refreshed. Let the eyes revolve slowly, not looking at anything; that is resting them. If a man gets very tired walking up hill, it will refresh him to turn and walk the other way, but it will not rest him. He must stop walking entirely, to really rest. It must be a discontinuance, not a change of application. Effort in any direction draws from the stock of vital power. The stock is diminished if the exercise is continued, even in a different direction. Repose, not change, is rest. If a man works at the chair all day, it is refreshing to change to laboratory work at night; he feels refreshed by the change, but it does not rest him. He is drawing on his vitality all the time. He must have absolute cessation in order to replenish or accumulate vital power. A man is more easily fatigued in the early hours than later in the day. If a man commences gently, he will accomplish more than if he takes his most difficult operations at the beginning of the day. His day's work should begin like the sunrise.

Dr. Walker—Repose is not always rest. Rest consists in building up, in recuperation, in the proper distribution of nutrition. If a man stands in one position for hours, he exhausts his nerve force; there is no circulation of blood in certain portions of the system. Repose in such conditions would not afford rest; the blood requires circulation by active exercise. Under those circumstances a man might lie like a log all night, and not be at all refreshed or invigorated by his night's sleep. Stirring up the blood would be rest in that case. In the use of the eyes it is a great mistake to work in a varying light, exposed to changing shadows, or with glaring side-

lights. After an experience of thirty-five years I have learned to avoid anything but a direct light upon my work. I remove everything that produces a glare, have the walls a neutral tint, and all white objects out of range of vision. The light must also be under control as it changes with the hours of the day. The vision is confused and the eyes injured by glare from bright objects, or by cross lights or side lights. We want a steady, direct light upon our work.

Dr. Williams—This matter of glare has not received sufficient consideration. Too great a flood of light obtunds the sensitive optic nerve. With a bright south light the optic nerve loses its strength early.

The student, when weary of study after long hours, goes out and takes vigorous exercise, say in rowing; he feels refreshed, and his brain is rested, but we must remember that men who study exhaustively have not an inexhaustible supply of vital force. They must have absolute freedom from application. A barrel is soon emptied if it is running from a faucet at both ends. If only the arm is tired, rest the arm; but if fatigue is general, the rest must be absolute.

Dr. Baldwin—The scope of the paper is wider than that taken in the discussion. We must consider the point not only of rest for the operator, but of rest for the patient. When partially exhausted we become nervous, irritable. The patient becomes the same; he is unable to control certain physical motions; the effort required for the necessary restraint becomes unbearable sometimes; we will call it nervousness. When you feel that way, and when you realize that your patient feels that way, a dose of from thirty to sixty grains of bromide of potassium, in solution, will be found invaluable. Before undertaking a long and difficult operation, if both patient and operator would prepare themselves by taking from twenty to forty grains of bromide, in solution, they would be astonished at the augmented powers of endurance. There will be less exhaustion, and a hard sitting will be endured with freedom and ease.

Dr. Walker—We should all study to avoid extremes. The brain is rested by exercising the muscles, but neither brain nor muscles should be exercised to exhaustion. When at college I had a fellow-student whose worldly circumstances and physical health were both apparently very poor. He boarded at a water-cure, five miles from the college, walking back and forth night and morning, supporting himself by work out of hours. While others were poring over their

books with exhausted brain, and lessons always poorly committed, this young man was recuperating his mental powers by physical exercise, and his lessons were always well prepared.

Dr. Smith—In the use of the eyes most of us are governed by individual strength and habits. Some will feel no fatigue where others would be exhausted. Before I was advised to get glasses I had no trouble with my eyes, but since I took to glasses my eyes get fatigued. Glasses afford only one focus, and the eyes get tired. I find them a hindrance to work. The proper management of light is a most important point. The changes of light from shadows and clouds are bad. We need direct light from above, with no glass, and no change in the degree of light. A person in good health, with eyes of ordinary strength, will not feel the need of rest for the eyes until the whole body is fatigued. If in reading fine print the lines blur and run together, then it is time to stop. I doubt if dentistry is good for the eyes. We work at a closer focus than is natural.

Dr. Williams—We must not be afraid to use helps. We need lenses for small objects as much as the jeweler or the engraver. It is a false sensitiveness to fear that patients will think your eyes poor. Many, from this fear, use reflecting mirrors, or a magnifying glass. A lens is much better. We must have rest, and also use helps, no matter what remarks patients may make. They might also think that because we use absolute alcohol in the palm of the hand we are therefore drunkards. The objective point in our work requires magnifying.

The discussion was then closed.

Dr. J. S. Marshall, of Chicago, Ill., was nominated for Chairman of the Section, and Dr. A. E. Baldwin, of Chicago, Ills., for Secretary.

The time and place of the next meeting, by the action of the American Medical Association, was fixed for St. Louis, on the first Tuesday in May, 1886.

The Section adjourned to meet at that time and place.

NEW YORK ODONTOLOGICAL SOCIETY.

The regular monthly meeting of this society was held at the residence of Dr. Geo. S. Allan; President Jarvie in the chair.

Dr. Bodecker—Presented samples of copper amalgam which he

had received from Germany, and which he considered of much value. He had employed this amalgam for lining the cavity walls before introducing other amalgams in general use.

Dr. A. H. Brockway—Asked what peculiar advantages the copper amalgam possessed over other amalgams?

Dr. Bodecker—Thought copper amalgam made a more compact filling, but his objection to filling cavities entirely with this material, was its liability to discolor in the mouth, as it is too apt to do. Dr. B. was asked if a perfect union took place between the copper and other amalgams when placed side by side in the same cavity. In reply, Dr. B. thought it possible, but had not used it a sufficient length of time to speak positively on that point.

Dr. E. A. Bogue—Stated that no union would take place in such cases, and that where such a plug is removed from its cavity the silver amalgam would scale from the copper filling.

The matter of "systemic effects" produced by copper amalgam was mentioned.

Dr. Brockway—Had seen large stoppings of this material, that had been in patients' mouths for a great length of time, showing no ill effect and causing no complaints whatever.

Dr. W. H. Waite, of Liverpool, England, who was present, stated that in England it was a common event to see copper amalgam stoppings in patients' teeth, and he had never heard of any complaint regarding disagreeable taste from its presence, nor had he ever heard of any ill effect to the system caused by them. He had not used it much in his own practice, as he preferred silver amalgam.

Samples of copper amalgam were presented to members of the society by Dr. Bodecker, for trial or experiment.

Dr. Brockway—Referred to a paper read at the previous meeting by Dr. Clowes, upon "Separation," which was not then discussed, and he desired the author to explain his operations or methods of separation, that the members present might better understand them.

Dr. Clowes—Expressed himself as greatly surprised to find that his paper had awakened this degree of interest, and that he should be called upon for further explanation, especially as his efforts in this direction were usually received with incredulous smiles. He, however, explained his practice of separating, which, although it

was by some pronounced painful and barbarous, he performed even upon the teeth of children, who went through the operation as if they were enjoying a sort of frolic. Being asked by Dr. Brockway what proportion of his patients had their teeth thus separated, Dr. Clowes replied, "Almost every one." He further stated that it was a well known and simple fact, that where the teeth naturally stood apart there was no decay, but when so close together as to hold food they were always in danger of decay. When a young operator he *thought* separation good practice; now, as an old operator, he *knew* it to be so.

A paper sent by Dr. Beers, of Montreal (who was detained by sickness), was read by the Secretary.

Dr. Waite, of Liverpool, was formally introduced to the Society, and read an exceedingly interesting paper on the subject of "Dental Education in England and in the United States." He premised by stating that the course of study and examination for the degree of L. D. S. in England was as rigid and thoroughly conducted as for the degree of M. D. The English system, as to *theory*, in examinations, he considered excellent, but they greatly lacked *practical* demonstrations in operations before examiners, which American colleges insisted upon. He congratulated the profession upon the continued advancement made in the educational departments, and especially upon the introduction of preliminary examinations. The doctor did not believe in the system of having the examinations conducted by the professors, but thought, as in England, they should have an examining board appointed, whose duty it should be to visit the different colleges and examine into the qualifications of students.

Dr. Waite then exhibited to the society some specimens of prehistoric dentistry, consisting of artificial teeth attached to gold bands or collars, made to fit the necks of the natural organs, the same that were described by him in the April number of this Journal. These specimens were obtained by Dr. Waite as a loan from one of the English museums. The specimens were much like those represented in the January number of the INDEPENDENT PRACTITIONER, in the contribution of Dr. Van Marter, of Rome.

The thanks of the society were tendered to Dr. Waite for his paper, and for his trouble in obtaining and exhibiting the very interesting specimens.

Editorial.

WHICH WAY?

The only complaint of the INDEPENDENT PRACTITIONER that has ever been made to us, was entered by a certain perambulating practitioner of circulatory peregrinations — in other words, a cat-whipper. His grievance was, that too many of the articles which it contained required study. They were above his comprehension. He wanted more amalgam and red-rubber. His longing was for specific instruction, in three words, of how infallibly to cure any oral disease that should come under his observation. We satisfied that yearning on the spot, and within the prescribed limits — "Pull it out;" that covered the ground. He was not likely to recognize more than one oral disease — toothache — and his comprehension would not include any other remedy than a mechanical one. Nor had he any very intense itching to improve his status, and to rise to a higher plane. His ideal conception of a professional journal was that of one which should give him everything in a nutshell. He only wanted the cream. He was pre-eminently one of those "busy practitioners," who are so driven by professional duties that they have no time for reading thoughtful articles. It was specifics that he was after; aphorisms — axioms — excerpts — *chestnuts*. If the I. P. would only condense and give pithy extracts, and confine itself to recipes and formulas and practical instructions, it would suit him better. What did he care for the etiology of disease? All he wanted was to know what would cure it. Of what interest to him was the pathological character of any condition? He had no time for these fooleries. He was too busy for such nonsense. But he would not mind the two dollars and a half, though money was very scarce with him, if we would only tell him how always to extract a tooth without breaking it off, or if we would give him some infallible remedy for "toothache," or publish a recipe that would invariably cure corns.

It is needless to say that we do not aim to publish that kind of a journal. The INDEPENDENT PRACTITIONER desires to be instructive; not amusing, or entertaining. If the dentist desires a jest-book, let him subscribe for "Puck," or "Life," or "The Judge." If he seeks to be entertained, he should read "The Atlantic," or "The Century," or "The New York Ledger;" his choice depending upon

the quality of his literary taste. It is the aim of this Journal to raise the professional standard, and not to lower it. We desire that its perusal shall result in better dentists; that its subscribers shall be well informed upon professional matters and thoroughly intelligent concerning new methods of practice. We are laboring to educate, and elevate, and edify. Perhaps the success attained is problematical and the methods questionable, but no man can impugn the motives.

No one is enlightened or instructed by a continued study of things with which he is already familiar. Stock-breeders do not teach young horses to carry their heads high by allowing them to eat off the ground, but by placing their food at the extreme height of their reach. If teachers never got beyond the alphabet, their pupils would learn very little of literature. They lead the young mind on by continually setting new tasks that lie just beyond the limits of present knowledge. If this Journal were to present papers and publish discussions only upon such questions as the average dentist thoroughly comprehended, on matters that were easily within his reach, how much would it add to his store of information? Would he gain in professional intelligence, or improve in actual practice by the study of trite matters? The general tone of dentistry is only to be raised by elevating the status of the individual practitioners. To get them on higher ground can only be accomplished by leading them up hill. We would have every dentist standing on tiptoe, straining his gaze to catch the first dawn of a new Truth as it rises above the hill-tops of ignorance and prejudice.

So the Independent Practitioner is continually publishing articles and essays that are a little beyond the information of the average dentist; articles that require study, and investigation, and thoughtful consideration for their full comprehension; articles prepared by those who are specially qualified in their chosen department; articles conveying, perhaps, different views of the same subject; articles possibly contradictory in tone and statement, but all tending toward a more thorough understanding of professional matters, all assisting in the general diffusion of light by throwing each its ray of illumination upon a hitherto dark place.

It might be asked, of what profit is it to the average dentist to

study the mycology of Dr. Miller, and to attempt to fathom all the meaning of his pure cultures of the bacteria of the mouth, or his investigations of their pathogenic character, or his studies of their morphology and proliferation?

It is not expected that every dentist will make a special study of bacteriology, but every member of a liberal profession should possess a reasonable amount of intelligence concerning the scientific aspect of his calling. The researches of Dr. Miller have brought us as a profession to higher ground, but the road has of necessity led up a steep declivity, and the path has been a rugged one. When he first essayed it there were comparatively few men in America who comprehended where it was to lead, but the number is daily growing of those who take a broader view of the matter, and who listen respectfully when men who are not mere speculative theorists, but who pursue original investigations, talk to us of matters heretofore only dimly apprehended.

In our May number Dr. Ross gave a thoughtful article upon Epithelioma. What proportion of the dentists of the country possessed sufficient information upon this subject, either to give an enlightened assent to his statements or to understandingly differ? By the average "busy dentist," who has "no time for reading," the article was only cursorily examined. But even to see the title in the table of contents starts a train of reflection, more or less permanent in character, through his mind. He knows that it is a subject upon which he should be informed, and his attention is attracted to it. Perhaps he goes back and does read it through, with only a partial insight into the lesson that it was desired should be conveyed, but it is all in the line of progress. His eyes are becoming accustomed to the light, and he commences to realize that the time must come when he, as well as Dr. Ross, should be competent to treat all such lesions as the ones described. Perhaps such an article may not attract the attention that is its due; some poor, untaught, illiterate, narrow-minded soul may even cry out against its appearance, as foreign to *his* dentistry, and as too scientific and erudite. What then? It has served its purpose, and a good purpose too, in giving an electric shock to these half-dentists. It may not teach them much, but it will at least wake them up. Another opening for the admission of light has been made, and soon the illumination will be perfect.

Too many of our number treat dentistry as if it were wholly a mechanical pursuit. At society meetings they may prate loudly of the dignity of dentistry, and claim membership in a *profession.* But their practice and their general conduct is that of mechanics. For instance — they are continually seeking after specifics. They desire to work by rule and square; to proceed according to exact mechanical directions. Like our friend of the first paragraph, they want axioms, and precepts, and recipes, and infallible laws. They do not comprehend that these things belong to a mechanical trade. Only half educated, and without the patience and studious habits that would enable them to thoroughly investigate any subject, they wish to arrive at the desired end by unerring rules and patent methods. In medicine they want a comprehensive remedy, that shall cure every known ill. They do not reflect that a *profession* deals with principles and general laws, which require a professional education and special training that they may be intelligently applied. They will not spend the time to carefully study an article that properly presents these things, but would jump at the conclusion by glancing at an unintelligible abstract, and so they go through life, trying to adapt mechanical laws to professional questions, and meet with a well-deserved failure.

It is needless to say that the INDEPENDENT PRACTITIONER will not cater to such tastes, but will, to the extent of its ability, labor to establish a better order of things, and to lead men to a higher plane, even though it be infinitely harder work to climb up the hill than to pursue the beaten level of the common-place. As for reprinting articles from other journals, we do very little of that. Not that we would be unable to find excellent matter to copy in our contemporaries, but because that so long as this Journal has a distinct voice of its own we prefer to use it, even though it be not so thrilling, rather than to copy the tones of the biggest lion that roars. We usually have enough of original material to serve our purpose, and what is presented in these pages will not be found elsewhere.

"DENTAL SURGERY."

In "Current News" for this month may be found an extract from *The New York Medical Record,* with the comments upon it of one of our associates. That journal is very poor reading for

dentists, for it never misses an opportunity to depreciate and insult a class of men, a large proportion of whom have received the same medical training as its churlish editor. The extract is invested with a grace peculiarly its own, when it is remembered that this same editor is the Dr. Bliss of the Grant case. It is the name of Shrady that was signed to the sensational, almost hourly bulletins, that were a scandal in the eyes of so many medical men, and that have caused the making of such unpleasant comparisons between the management of the cases of Gen's Grant and Garfield. We do not know that any parallel can be drawn between the ability that Dr. Shrady exhibits in diagnosis and prognosis and his judgment concerning questions of professional ethics, but certainly, in the latter he does not show to advantage, whatever may be his fame in the former.

Of course every candid man who knows anything of the subject at all, knows that laws for the regulation of dental practice do not in any way interfere with medical practice or surgery. But the degree of M. D. is not a patent of universal accomplishment, and if we may judge of medical men by some of the articles that have lately appeared in *The Record*, common oral diseases would appear to be a subject of which they are most ignorant.

GUM-CHEWING.

For a proper comprehension of Dr. Wright's article in this number, the reader should again peruse the discussion in the Mississippi Valley Association, reported in the May number of this Journal. There is a grave question involved in this matter, although Dr. Wright considers it in a facetious manner. With the article he sends a characteristic list of titles, and we present them all, that the reader may select for himself :

"The Fathers eat Sour-Crout and the teeth of the Children are set on edge ! ! "

"A short visit to the Third and Fourth Generations ! ! ! "

"A new variety of jawbone, *a la* Sampson ! ! ! ! "

"The Chewsharp of the Mississippi Valley Dental Society ! ! ! ! ! "

"Transmission of acquired characteristics through a carefully cultivated system of Gum-Chewing ! ! ! ! ! ! "

JAPANESE DENTISTS.

The following absurd statement first appeared in a metropolitan newspaper. It went the rounds of the large city dailies, then got into the literary weeklies, and finally became a stereotyped fixture in the patent-inside village regulators. As long as it was confined to the newspapers it was not worth while to contradict it. But lately it has been making its appearance in medical journals, and now it is time to enter a protest. We appeal, Gentlemen Medical Editors, to your compassion. Spare, Oh! Spare us further perusals of this preposterous newspaper invention.

"In Japan the extraction of teeth has reached a degree of perfection absolutely unknown in France, and I might say in Europe or America, where they have good schools of dentistry. The Japanese dentists do not overwhelm their victims by a display of the instruments of torture with which our artists draw their client's bad teeth, not to mention the sound ones. It is with the thumb and index finger that the Japanese artist delicately withdraws you a molar or two. Naturally, great practice is required before arriving to such a degree of skillfulness. To obtain this the dentist pupil serves an apprenticeship to a master. For a long time he has to exercise himself in extracting bits of wood inserted in planks, loosely at first, but afterwards solidly fixed by hammer strokes in oak wood. When the pupil can, at a single trial, and without apparent effort, draw out one of these wooden teeth, any human jaw can be confided to his care, and no tooth, though fixed in a steel *aleoculus* (Alveolus) can resist him. A skillful Japanese operator can, in half a minute, and without removing his fingers from the victim's mouth, remove easily his half dozen teeth."

THE MINNEAPOLIS MEETING.

By reference to another page of this number, it will be seen that the Committee of Arrangements are planning for a royal time in connection with the meeting of the American Dental Association. The time is convenient and the opportunity an unusual one for a pleasurable vacation. The attractions are so well set forth in the notice from the Chairman of the Committee, that it is needless to say more. But it is hoped that there will be a large attendance at the meeting. The pleasure of the journey thither will be much enhanced if the dentists can go on the same trains. Therefore, we venture to suggest an itinerary. If delegates from New York will leave that city by the 6.00 P. M. train of Sunday, they will be in Buffalo at 6.10 Monday morning, in time to take the Michigan Central "Flyer," which will land them in Chicago at 9.00 P. M. of the same

day, and they will arrive at Minneapolis at 3.10 P. M. Tuesday. Or, if they leave New York at 9.15 P. M. of Saturday, they will arrive in Minneapolis at 7.15 on Monday evening. Delegates from Boston will be obliged to leave on Saturday evening, to arrive in time for this meeting. The members from New York can go as far as Buffalo by either the West Shore or the New York Central Roads, but from that point the Michigan Central presents special attractions. It gives its passengers the finest opportunity to see Niagara Falls that is presented from any one point, without leaving the train. They will also have the benefit of the famous dining cars of this road, and will be in Chicago in time to join the delegates from other points who will meet them.

To avoid all worry, to be able to arrive in Minneapolis in sufficient time to get a good night's rest before the commencement of the meeting, that the delegates may not be completely jaded and fagged out at the very outset, we take the liberty to suggest that the members leave New York Saturday evening, and Buffalo Sunday noon, reaching Niagara at 1.20 P. M., Detroit 8.45 P. M., Chicago 8.00 A. M., arriving in Minneapolis at 7.15 Monday evening. Thus the journey of 1400 miles will be agreeably broken by occasional brief stops, and the delegates will arrive in time for a preliminary rest.

DEFERRED.

Considerable matter that had been prepared for this number is of necessity left over until next month. The continuation of the report of the meeting of The Dental Society of the State of New York, and the book notices that are due, form a part of it. Both shall have space in the next number.

Current News and Opinion.

WHAT IS DENTAL SURGERY?

We note that in nearly all of the States and in the District of Columbia laws are being enacted limiting the practice of "Dental Surgery" to a certain privileged class, which is designated as above. Now, if it is intended that physicians shall not treat any disease of the mouth unless they take out a degree from some dental "college," or from some medical school where there is

"annually delivered a full course of lectures and instructions in dentistry or dental surgery," as the Kansas dental law has it, it is about time that medical men were looking to their interests. The above law, however, generously permits "physicians, surgeons, or others," to extract teeth! If the dental "profession" has any claim to consider itself a specialty in medicine, this course is calculated to exclude it utterly. What would be thought if ophthalmologists, otologists or gynæcologists were to secure legislative enactment to prevent their medical colleagues from practicing in their field, unless they adopted the "profession" of ophthalmology, otology, or gynæcology, by taking out a "degree" in these respective branches? Such laws must be unconstitutional, or at least in conflict with the charters of medical schools, which are supposed to send out graduates empowered to treat any of the ills to which flesh is heir.—*Medical Record.*

Dreadful! Only think of it!! But really, *Mr. Medical Record,* is there anything so very strange in requiring practitioners of dentistry to show their qualifications for the practice of their specialty?

What proportion of physicians in the general practice of medicine are capable of performing such operations as dentists are called upon to perform? How many lectures are usually given to students of medical colleges in the course of a season, that relate to this specialty, even in the slightest degree? What opportunities have they to acquire a knowledge of these duties? The leading physicians in all our great cities admit that their knowledge of dentistry is exceedingly limited, and would as soon think of running a steam engine as to dabble at dentistry. And to a certain extent the same may be said of ophthalmology and general surgery. What proportion of the rank and file of "doctors of medicine" are thoroughly qualified to make nice operations on the eye, or to perform intricate surgical operations that require an advanced knowledge of anatomy, and a keen delicacy of touch that a skilled specialist in full practice has acquired? Perhaps the editor of the *Medical Record* is inflated with the notion that the degree of "M. D.," which he possesses, is the crowning degree of all knowledge, and indicates that its possessor is a sort of jack-of-all-trades. Individuals who *profess* to know too much, are not apt to show proficiency in anything. Many an "M. D." who has tried his hand at dentistry without proper training, has demonstrated the fact that the initials affixed to his name really meant "Miserable Dentist." Enough incompetent practitioners of dentistry have tortured humanity with their miserable operations. Why, then, object to the rooting out of charlatanism?

C. E. F.

AMERICAN DENTAL ASSOCIATION.

The twenty-fifth annual meeting of the American Dental Association will be held at Minneapolis, commencing August 4, 1885. The present prospects are that the meeting will be an unusually large one. Railroad transportation has been secured at an unprecedentedly low rate. Tickets for the round trip from New York to Minneapolis and return, will be furnished for $24.00. Round trip from New York to Chicago and return, for $18.00. Round trip from Chicago to Minneapolis and return, $6.00.

At present it will be necessary for those wishing these tickets to secure them in Chicago. Later we may be able to make arrangements by which they can be secured at different points east. By sending a check for tickets to the chairman of the committee of arrangements, the tickets will be promptly forwarded. Negotiations are pending for rates from other points, and more definite information will be given in a circular sent to every member. The hotel rates are as follows : West Hotel, $4.00 per day. Nicollet House, $3.00. National Hotel, $2.00 per day. It is expected that a reduction from these prices will be made.

It is hoped that members having any new facts or ideas in regard to theory or practice, will come prepared to present them in connection with the section work. Any one having anything new in the way of appliances, will be given an opportunity to demonstrate its use during the half day that will be devoted to clinics.

ATTRACTIONS AND EXCURSIONS.

Come equipped with guns and fishing tackle. While the interest and benefit of the meeting, the attractions of the trip and the beautiful city where we meet are too well known to need special mention, it may not occur to all that they will find themselves in one of the finest of hunting and fishing countries. Minnesota is especially famous for its prairie chicken and grouse shooting, and its fine fishing grounds. It is estimated that there are no less than 10,000 lakes dotting the State.

If any one wishes a still greater variety of scenery, to see a new, wild and picturesque country, to draw out the big brook trout, the black bass, the gamy pickerel, and the mighty muskallonge from the cold waters of the Lake Superior region, in fact, to enjoy the finest fresh water fishing in the world, a round trip ticket from

Chicago to Ashland and return will be furnished him for $10.00. A still greater attraction (if another were needed) is offered in the shape of a ten days' excursion to the far-famed Yellowstone National Park, immediately upon the close of the meeting, provided a sufficient number send in their names to warrant the securing of special cars and special rates. The committee believe that when so far on the way as Minneapolis, many will wish to avail themselves of this opportunity of seeing the grandest scenery in the world. The entire expense for the round trip from Minneapolis, including rail transportion, Pullman sleeping car fares, meals on Northern Pacific dining cars, hotel accommodations, five days in the Park, and stage transportation, will be $120.00. A circular describing the magnificent scenery in full, will be sent to every member of the American Dental Association at an early day. Others than members, who may contemplate going, will receive the same upon making application for it.

Come one, come all, and bring your wives along. It will be a trip that ladies will especially enjoy. Those wishing to go to Yellowstone Park will please send in their names at an early day, that all arrangements may be speedily and satisfactorily completed.

For further information address

J. N. CROUSE,
Ch'n. of Com. of Arr.

2101 Mich. Ave., Chicago, Ill.

PENNSYLVANIA STATE DENTAL SOCIETY.

The seventeenth annual meeting of the Pennsylvania State Dental Society will convene at Cresson Springs, Pa., Tuesday, July 28, 1885, at 10 A. M., and continue in session three days. Rates at the Mountain House have been reduced from four to three dollars per day to delegates and their families, dating from Saturday, July 25th, and continuing as long as desired. Orders for *special* excursion tickets will be issued over all lines of the Pennsylvania and A. V. R. R.'s. Usual excursion rates on other roads. Orders or general information can be obtained by addressing

W. H. FUNDENBERG,

958 Penn Ave., Pittsburg, Pa. *Cor. Sec.*

NEW JERSEY STATE DENTAL SOCIETY.

The fifteenth annual session of the New Jersey State Dental Society will be held at the Coleman House, Asbury Park, commencing July 15th, and continuing in session three days. Every effort has been made to have this particular session the most memorable of any heretofore held. Interesting papers have been promised from the most eminent men in the profession, and the society membership have also contributed liberally. The clinics to be held will be made an important feature, and considerable time and attention has been given towards an exhibition of new and important surgical and mechanical appliances for use in dentistry. It is in contemplation to give a grand reception to the visiting members of the profession on one evening, to be arranged for. The place is easy of access from everywhere. The cuisine, the best; $2.50 per day, the rate. The location superb, within fifty feet of the surf. The hall for sessions, attached to the hotel, commodious and cool. All the profession will be made welcome. CHAS. A. MEEKER, D. D. S.,

Secretary.

TO SUBSCRIBERS.

Complaints have occasionally been made that copies of the INDEPENDENT PRACTITIONER have miscarried, through defects in the address, or for some other reason. In copying so large a list each month, it was impossible always to avoid errors. To guard against them in the future we have had the subscription list printed, and the whole edition will in the future be directed from these mailing slips. The Buffalo office should have early notice of any failure in the receipt of each number. The Journal is regularly mailed on the last day of each month.

SIXTH DISTRICT DENTAL SOCIETY.

The following is the list of officers elected at the sixteenth annual meeting of the Sixth District Dental Society :

President—C. E. Dunton, Cazenovia.

Vice-President—S. W. Ademy, Union.

Secretary—E. D. Downs, Owego.

Treasurer—Frank B. Darby, Elmira.

Censor—E. D. Downs, Owego.

Delegates to State Society for four years—W. C. Stewart, Elmira, A. M. Holmes, Morrissville.

THE INTERNATIONAL MEDICAL CONGRESS.

At the late meeting of the American Medical Association, the authority granted to the committee appointed to invite the Congress to meet in Washington in 1887, and to make arrangements for the meeting, was virtually revoked, and a revisory committee was appointed. The original committee had been authorized by the Congress in session at Copenhagen, in 1884, to proceed with the arrangements, and when the invitation was accepted it became the committee—not of the American Medical Association, but of the International Congress,—and hence the American Association was wrong when it assumed to overrule and revise its action. If this were not so, then the Congress has no permanent existence and no continuing committees. But the "outs" were determined to become the "ins," and hence the mischievous action at New Orleans, which must prejudice the success of the whole meeting. The committee appointed at New Orleans is in session at the time of writing this paragraph, and a telegram informs us that it has dropped the section of Oral and Dental Surgery entirely. Probably it is as well, for dentists will be spared participation in a professional squabble that could not have proved entertaining or profitable.

AMALGAM SOLVENTS.

In Dr. Francis' excellent article in the May number of the INDEPENDENT PRACTITIONER, occurs this assertion: "No solvent of amalgam pervades the precincts of the oral cavity." Properly inserted and well-polished amalgam fillings are to be seen with slight changes of condition. But the vast majority of amalgam fillings exhibit decided alteration in color, evidencing that something in the fluids of the mouth acts upon them. Now and then amalgam fillings are noticed, so acted upon as to have lost considerable material, the surfaces of the remaining portions appearing as would rust-eaten steel. Cases are presented in which this disintegration and roughness of amalgam fillings have caused discomfort to the patient. By the testimony of these scarred witnesses it would appear that a solvent of at least some grades of amalgam does pervade the oral cavity.

B. H. TEAGUE.

TO ADVERTISERS.

This journal will be found on file at Geo. P. Rowell & Co.'s Advertising Bureau, No. 10 Spruce Street, New York, and advertising contracts may there be made for it.

(63.) I wish some of the traveled readers of the I. P. would inform me whether, during a two months' vacation, it would be practicable for me to visit Europe with any degree of satisfaction, and what a trip would cost. Of course it will be too late for this year, but some of us, if we ever do go, must commence a long time in advance to make preparations. JUNIOR.

(64.) Can any reader of the "I. P." give any reason for the increase of Pyorrhœa Alveolaris, and will some one kindly state a course of treatment that has given satisfactory result? C. E. H. P.

(65.) We hear that much trouble is sometimes occasioned by exostosed or hypertrophied roots. I would like much to have some one well posted in histology inform me, through the INDEPENDENT PRACTITIONER, what produces exostosis, or how the ossific accretions are deposited? W.

(66.) I have heard or read of Tincture of Calendula as a therapeutic agent for dentists' use. Will some kindly disposed reader of your valuable journal please state its use, and how it can be obtained? "KANSAS."

(67.) Will some one please give in the next I. P. the process of uniting vulcanite and emery so that it may be vulcanized into one solid mass?

A. M. T.

Answers.

DENTOS. (61.) Bleaching teeth. The root canal should be well cleansed, carefully treated, and partly filled, that the apical foramen may be securely sealed. Cut away all the discolored dentine possible to spare; syringe with tepid water; dry out the cavity, then take a pellet of cotton moistened with Labarraque's Solution (Chlorinated Soda), gather upon it a quantity of finely powdered alum and pack it in the cavity. This rapidly generates chlorine gas, the agent needed for bleaching. This may be repeated several times, after which the cavity may again be washed and the walls lined with a thin coating of oxy-chloride of zinc. A case of two central incisors, recently treated in this manner, proved a decided success. C. E. F.

OLD DENTIST. (58.) In the *Dental Cosmos* for Sept., 1882, may be found a query of my own as follows:

"Some time since I made full upper and lower dentures for a gentleman aged 57. In wearing them he complains of the increased flow of saliva,—so much so that it will flow out of his mouth when speaking. Will some one inform me of the cause and give me a remedy for it? The upper plate is bow-spring and the lower weighted rubber. Would a celluloid plate be better?—BAYONNE."

In the October number of the same journal the following appears, and it may also benefit "Old Dentist," as it certainly did me.

"If 'Bayonne' will examine the case in question, he will propably find one or both his plates impinging on the salivary glands (presumably the lower on the sublingual), and by its constant irritation causing the flow. A plate should always be clear of the glands, and, with some exceptions, of the muscles also. If the muscles are allowed to bear on the plate, they tend to throw it off the jaw and make it unsteady." BAYONNE.

B. C. M. (53.) The treatment of the abscessed teeth of children is a difficult matter. Of course, nothing permanent can be done, and if they are in a very offensive, painful condition, it is practicable only to extract them. But if there is only a sub-acute inflammation, and if there is no very active discharge, it may be possible to cleanse the cavity of decay, as well as circumstances will permit, and to introduce some antiseptic, and when they are in a tolerable condition to fill with gutta-percha. I like Listerine very much for the treatment, as it is not unpleasant to the taste. When the tooth becomes comfortable the pulp chamber may be filled with cotton moistened with carbolic acid diluted with glycerine, and gutta-percha placed over that. The root canals may be filled as far as they can be easily reached, but the dentist must look to the extraction of the tooth when the permanent successor is ready to make its appearance, as the roots will not become absorbed as in the case of a living tooth. C. W. B.

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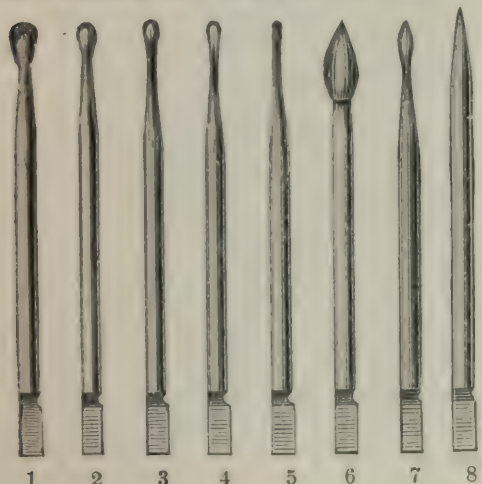
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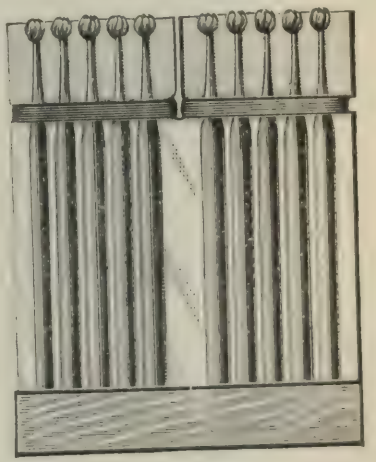
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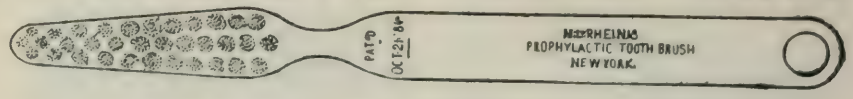
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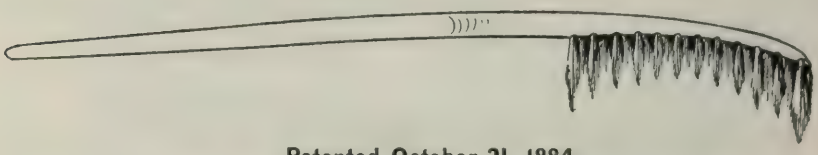


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Adult's, - - -	per doz., $3.00	Child's, - - -	per doz., $2.50
" half gross, -	" 2.75	" half gross, -	" 2.25
" 1 gross or more,	" 2.50	" 1 gross or more,	" 2.00

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The Adult Brushes come packed in boxes of a dozen each, of which (unless otherwise specially ordered) the bristles of three are soft, three hard, while six are of medium quality. Each individual brush is in an envelope, having printed directions thereon for its proper use.

We have in our possession letters from dentists all over the United States endorsing the good qualities of the brush, and we append the names of a few of the prominent ones who can testify to its superiority:

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" E. S. Gaylord, New Haven, Conn.
" J. L. Williams, " " "
" C. A. Timme, Hoboken, N. J.
" S. Freeman, Easton, Pa.
" G. L. Parmele, Hartford, Conn.
" I. Williams, New Philadelphia, Ohio.
" J. L. Hill, Gettysburgh, Pa.
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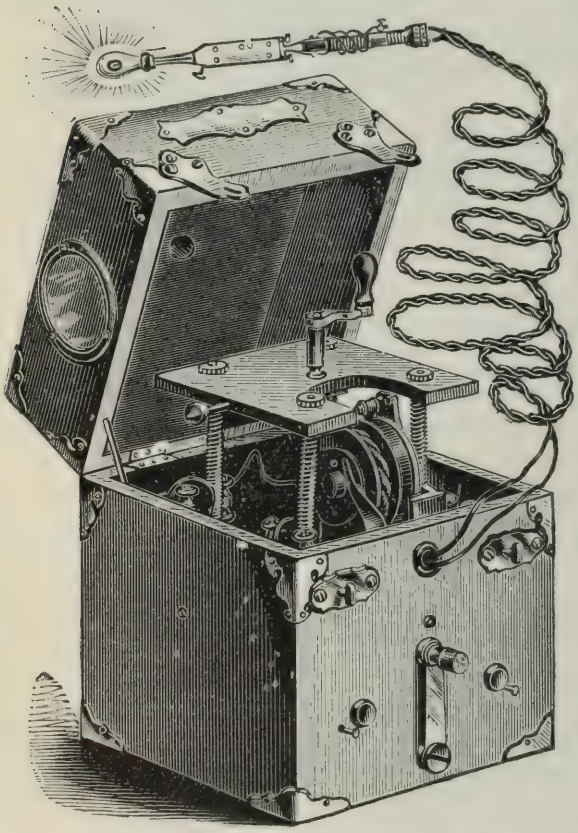
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THE

Independent Practitioner.

VOL. VI. AUGUST, 1885. No. 8.

Original Communications.

THE HERBST METHOD OF FILLING TEETH.

BY C. F. W. BODECKER, D. D. S., M. D. S., NEW YORK.

AN ADDRESS DELIVERED BEFORE THE DENTAL SOCIETY OF THE STATE OF NEW YORK, MAY 13TH, 1885.

Mr. President and Gentlemen :

I have no doubt that you have heard or read of the new process of introducing filling materials, such as gold, tin and amalgam, into cavities in human teeth by means of engine-burnishers. It is some years since Dr. Shumway, of Plymouth, Mass., advocated rubbing gold into cavities by the use of ivory points, but he did not employ the dental engine. I have been informed that Dr. Bronson, of New York, had more recently used ordinary engine-burnishers for the introduction of amalgam only.

About six years ago Wilhelm Herbst, of Bremen, Germany, who is not conversant with our professional literature, conceived the idea of introducing gold into cavities by means of smooth-faced burnishers. Herbst's discoveries were, therefore, made independent of Shumway and Bronson. The method now practiced is as follows: The gold is introduced into the cavity in the form of pellets,

or cylinders, which are burnished down against the walls of the cavity, beginning with a hand instrument and continuing with a roof-shaped point in the engine, with which the gold is condensed thoroughly into every depression and corner of the cavity.

The advantages claimed for this method are :

1st. Better adaptation to the walls of the cavity than it is possible to obtain by any other system.

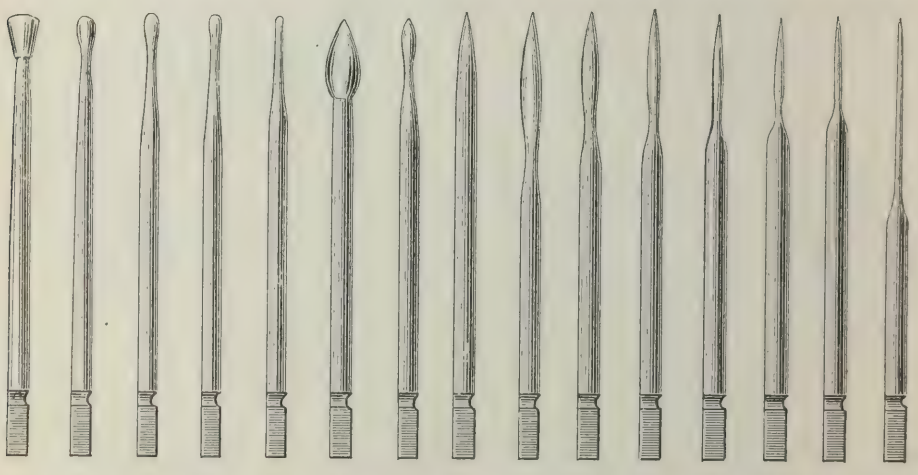
2d. The saving of about one-half the time required for other methods.

3d. Some of the most difficult operations (as proximate surfaces of the molars and bicuspids) by this method are very easily performed.

4th. Gold can be perfectly adapted to the thin walls of enamel without danger of fracture.

5th. The introduction of gold, when done by this method, is much less annoying to the patient, and less laborious to the operator.

The instruments used for this method are mostly ordinary smooth burnishers, of which there are three sets; one set of engine points, one



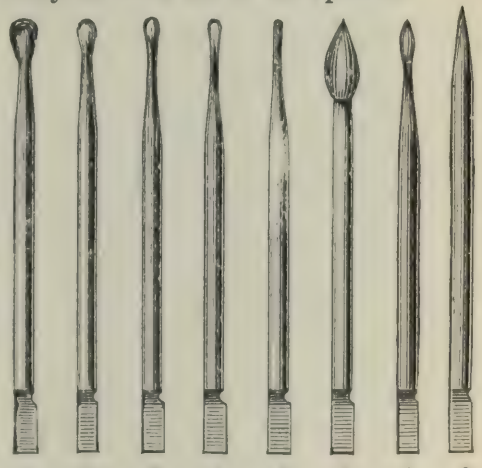
(Fig. 1.)

set of hand instruments, and one set of bent hand instruments. The two former sets were designed by Herbst, the latter by Dr. Frank Abbott. The engine set is composed of fifteen instruments, but only a few of these are very much used, although we may meet with cases in which all can be employed. The most important of

them is the roof-shaped instrument No. 5, of which there should be several sizes. These can easily be made out of a broken bur, as follows: The broken instrument is put in the hand piece of the engine, which, while rotating rapidly, is ground upon an Arkansas stone. The instrument should lay obliquely upon the stone, like a pen in writing, and be quickly moved, drawing it from one side of the stone to the other.

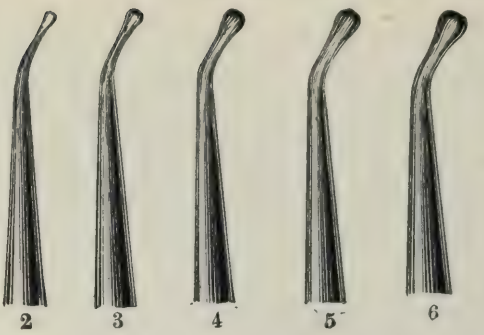
The instruments Nos. 2, 3 and 4, since they have been replaced by hand instruments, are but seldom used for gold fillings. The larger instruments, Nos. 1, 2 and 6, are mostly intended for the use of amalgam and tin. The pointed instruments, Nos. 7 to 15, are used for finishing and condensing the edges of proximate fillings. To this set I have added three very small, round points, in shape resembling a round cavity bur. They are designed for the use of small proximate cavities in incisors, and to me have proved of great advantage. (See Fig. 10.)

Mr. R. S. Williams, of this city, has devised a roof-shaped condensing instrument with corrugations, which possesses some advantages. All these instruments should be highly tempered. When, therefore, by continual use they become soft, they should be re-tempered.

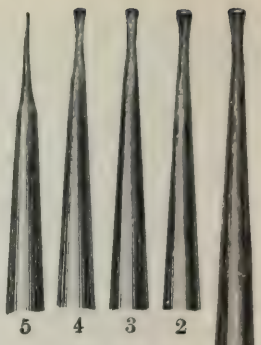


(Fig. 2.)

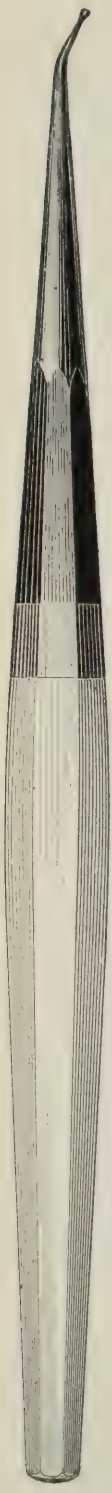
About a year ago, when I gave a clinic before the First District Dental Society, Dr. Wheeler, of Albany, handed me a burnisher made of blood-stone, with which I finished the filling. The gold will not cohere to agate or blood-stone as it will to steel, thus obviating the necessity for the frequent cleaning of them upon emery, crocus or rouge cloth. These agate and blood-stone points have lately been imported by Dr. Timme, of Hoboken, New Jersey. They may be run at a high rate of speed, without perceptibly heating the gold. Gold introduced with agate or blood-stone becomes perfectly polished, and if another layer of gold is to be added the filling must previously be roughened by a roof-shaped or Williams instrument, else the several layers of gold may become separated again.



(Fig. 3.)



(Fig. 4.)





The hand instruments designed by Herbst (Fig. 4) are five in number. Four are pear-shaped and one is a very fine roof-shaped instrument. Nos. 1, 2, 3, 4 are intended to condense and bring the gold to its proper place before the roof-shaped engine instruments are employed. No. 5 is an exploring instrument, which is to be pressed over the surface of the gold, especially the first layer, to discover the imperfectly condensed places.

Dr. Abbott's set (Fig. 3) is composed of bent burnishers, for those places which a straight instrument cannot perfectly reach. These instruments will condense the gold almost as perfectly as the engine burnishers, and offer special advantages for this method.

When I first read an account of this method I placed very little confidence in it, and did not give it much attention until about two years ago, when Dr. Herbst sent me a patient, that I might examine some of his operations in the mouth. These fillings were beautifully done; the edges were absolutely perfect, clean cut, and as well finished as they could be when done by the best of our mallet operators. Last year, when in Europe, I stayed with Dr. Herbst a week,

experimenting with him all the time. I took from America a Bonwill mechanical mallet, that I might be sure that I had an instrument with which I was acquainted. Herbst first filled a steel matrix, somewhat resembling a bicuspid tooth, in which a moderately large hole had been drilled. In this cavity were a number of small pits, drilled at right angles to it. When filling this cavity with the mechanical mallet I was obliged to confess my inability to reach the pits with that instrument. Of course, no one would think of preparing a cavity in the manner in which the matrix was prepared, but for the sake of arriving at some definite conclusions we proceeded. I consumed about twice the time that Herbst did, and when we took out the plugs mine were imperfect, while his were perfectly polished upon the surfaces next the steel. This, of course, induced me to pursue experiments further. The plugs made by Herbst himself, by rotation, when weighed were found to be a little lighter than those I made with the mallet, but the adaptability was very much superior.

At the May clinic of the First District Dental Society, we performed some experiments, first in glass tubes which I have here for inspection. One was filled by Dr. E. P. Brown, with the Bonwill mallet, in twenty-nine minutes (marked Brown) ; one was filled by Dr. Abbott, with hand burnishers, employing the same process as the Herbst method, save that he did not use an engine (marked A), the filling being completed in six and a half minutes, and my tube (marked B) was filled in six minutes, the gold being introduced by the Herbst method. By comparing these three tubes, you will observe that with the Herbst method can be obtained the most perfect adaptation possible, a result which cannot be reached by the mallet system. We experimented further at the clinic, with a matrix made of steel, which was furnished by Dr. Abbott. Dr. Brown, with the electro-magnetic mallet, filled that matrix in forty minutes, and his plug weighed eighteen grains. Dr. Abbott employed the rubbing method, using his hand instruments, without the engine, and it took him eight minutes, he employing some one to anneal and feed the gold. This plug weighed seventeen and a half grains. I used eleven minutes, and my plug weighed fourteen and a half grains, rubbing with the engine. But here I must state that this experiment was not quite conclusive. In the first place, my matrix was not completely filled, and the engine I had at my disposal was alto-

gether worn out. I have since made some experiments with steel points (in the former experiment I was using agate points from the beginning to the end), and in these later experiments I have brought up the weight of the plugs, made in the same matrix in about the same time, to seventeen and three-quarter grains. On removing these fillings, Dr. Abbott's as well as mine separated into two parts, but Dr. Brown's stayed intact. The adaptation against the steel wall was absolutely perfect in my plug ; in Dr. Abbott's it was nearly perfect, but in Dr. Brown's there were several places where could be seen the layers of the foil. From these and other experiments I draw the conclusion that, against the walls of a cavity, nothing can produce so perfect an adaptation as the Herbst process. When such a filling is taken out, it presents a perfectly polished surface. Experiments that I have made since that clinic have demonstrated that steel points will condense the gold better than agate. There is more penetration to the former, and blood-stone ranks between the two. But if the steel points be continually used in the engine they become coated with a film of gold, and they must be frequently rubbed upon tin, crocus cloth, or something that will remove it.

Dr. Brockway asks if this is not because one can bear on harder with a steel point. I think not, because by using straight pressure upon a large sized agate almost as much force can be used as with a steel instrument. The small agate points are, of course, very frail. I have found that a plug made entirely with agate points does not weigh as much as when condensed by steel. But when the new hand instruments are first used to put the plug in place, and followed by the cone-shaped steel instruments, the condensation of the gold is perfect. The use of the hand instruments will, to a certain extent, save the cleaning of the engine points, thus making the agate or blood-stone unnecessary.

In experimenting with this method, Herbst, as well as myself, has tried the gold of most manufacturers, and found that almost every kind can be used, but that manufactured by Carl Wolrab, of Bremen, Germany, is particularly well adapted. There is no preparation of gold with which I have had such good success as with this, and I think that those gentlemen who have used it will corroborate me.

The forms of gold best adapted for the Herbst method are very

soft cylinders, of which the larger sizes are the most useful. If foil is used, Nos. 3, 4 and 5 are the best for the purpose. The leaves are cut into halves, and rolled into a rope between the fingers or with a napkin, and cut into pellets of required length ; or the sheet may be divided into squares measuring from one-half to one inch, which, by means of a pair of foil tweezers or the fingers, are formed into pellets. The foil, as well as the cylinders, should never be annealed when used in the first layers of the cavity, except it be a contour operation.



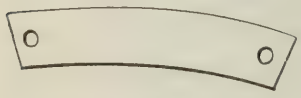
(Fig. 5.)

One of the essential rules for filling by the Herbst method is the conversion of all complicated cavities (such as proximate ones), which possess but one, two or three lateral walls, into simple ones (such as cavities involving the grinding surfaces of molars, and having four lateral walls), which is accomplished by the application of a proper matrix. The matrices used for this purpose are either made of steel, Brown's polishing metal, wood or shellac, or the Jack matrices may be employed. Those used for the proximate surfaces of molars and bicuspids are the forms devised by Dr. Louis Jack, or they may be made out of a piece of thin watch-spring, wood, or the loop matrix may be employed. The watch-spring matrices are made out of a piece of watch-spring saw, such as may be obtained from any of the dental depots, in the following manner: A piece of saw, about half an inch long and as broad as the cavity is deep, is cut off and heated over a spirit flame until it is dark blue. The points of the matrix which are designed to rest on the cervical edge of the cavity ought to be well rounded off, that in cavities extending under the gum it may be pushed down without injuring either the lingual or buccal portion of the gum. The lateral ends of the matrix must be bent around the lingual and buccal portion of the tooth to be filled, like a clasp, so that the matrix when in position and viewed from the grinding surface shall present a semi-lunar form. When thus prepared it may be secured by one or two wedges or pins of wood, inserted, one from the buccal, the other from the lingual side. These wedges should be placed near the gum, between the matrix and the adjoining tooth, firmly pressing the former against the edges of the cavity. In adjusting one of these matrices care should be observed that in mesial cavities

it does not quite reach the grinding surface of the tooth, or it will obstruct the entrance to the cavity. All these steel matrices may be saved and used many successive times. When two cavities in bicuspids or molars face each other, if the former plan does not answer, the matrix, after it has been placed in position, may be secured by filling one of the cavities with cotton or shellac. In some cases, where there is sufficient separation between the two teeth, Dr. Jack's matrices should be used, as they will restore the contour of the tooth better than any other. In a former publication, I mentioned that in proximate cavities of molars and bicuspids Herbst did not level the edges of a cavity very much, because he adjusted the matrix so closely that none of the gold had to be trimmed off. But I have since found that the loose adjustment is not only no objection, but an advantage. The matrix, if adjusted loosely, will permit the gold to project from the cavity somewhat, and by means of the pointed burnishers, Nos. 8 to 15 (Fig. 1), it can be rubbed over the edges, but the filling of a cavity, when the matrix is not entirely firm, requires a little more care and practice than the filling of a cavity against the walls of which the matrix is carefully secured.

When several walls of a back tooth are to be restored, or the adjoining tooth is missing, the loop matrix (Fig. 6) may be employed with advantage. The loops, as supplied by the dental depots, are much too thick for the majority of cases.

Extra loops are very easily made from a thin watch-spring saw, to fit every case where a loop matrix is applicable. If the circumference of the tooth to be filled is very much greater at its grinding surface than at the neck, the loop may be annealed and hammered as required, or the loop may be given such a form that when bent together it will be larger on one border than on the other.



(Fig. 6.)

In some instances, where the lingual walls of the upper front teeth are not broken too much, I have made use of a thin piece of Brown's polishing metal, or steel. At first I used steel, as mentioned before, in the form of a thin watch-spring saw. But I found that this material in some instances was difficult to adjust perfectly against the lingual walls of the teeth. Then I used Dr. Brown's polishing metal, which I found of great service. It is a metal very

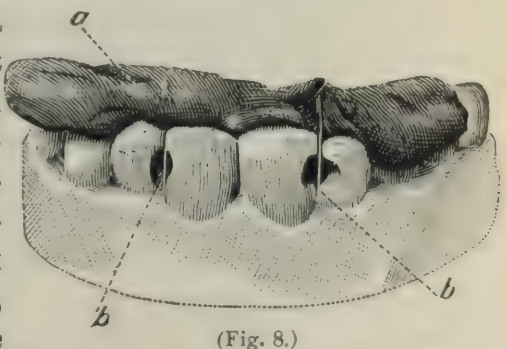
easily bent in shape, easily adjusted, and easily removed again, and it can be readily held in position with the fingers. In some instances, where the perforation in the lingual wall is extensive, I have held a small piece of thick blotting paper under the Brown metal, which will then stand all the pressure required for the introduction of the gold. To form the matrix I take a piece of the thin metal, about one inch in length and wide enough to completely cover the cavity in the lingual surface of the tooth to be filled, insert it between the proximate surfaces of the incisors containing the cavity, and bend one end of it so as to cover the cavity in the lingual surface; the other end is bent out of the way, over the labial surface of the adjoining tooth. (See Figures 11 and 12.)



(Fig. 7.)

For the proximate surfaces of the incisors, when their lingual walls are broken, as well as in contour operations, a matrix of shellac is employed, which may be made in the following manner: A piece of shellac, the size of a large walnut, is warmed over an alcohol lamp to the consistency of putty, and after the rubber dam has been adjusted this is pressed against the lingual wall, extending a little over the cutting edges of four or six of the teeth. After it has become hard it may be removed from the mouth, and if any of the shellac is pressed into the cavity it must be carefully removed by cold excavators. It is trimmed as desired, and then put back again in its place. (See Fig. 8.)

When the labial wall of such a cavity is broken to such an extent that the gold can be easily packed from the labial surface, an additional steel matrix must be applied against the proximate surface of the cavity. This matrix may be secured either by pins, wood, or cotton, or it may be warmed and pressed into the lingual surface of the shellac matrix, as in Fig. 7.

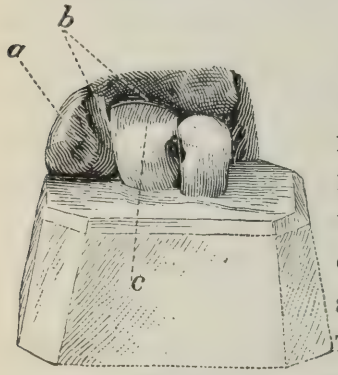


(Fig. 8.)

This steel matrix, made of a thin piece of clock or watch spring,

must not quite reach to the labial surface of the tooth, as it may offer an obstruction to the introduction of the gold. Herbst says that the same matrix represented in Fig. 8, has been used in the mouth from which this cast and drawing were made.

The matrix used for contour operations of incisors is made in a similar manner, but besides the steel matrix of the proximate surfaces, an additional one should be put in for the restoration of the cutting edge of the tooth. (See Fig. 9.)



(Fig. 9.)

The preparation of cavities to be filled by the Herbst method is, with a few exceptions, the same as for any other method. In no instances are deep undercuts or starting pits necessary, but the cavity should be so shaped that it will securely hold the filling. The edges are prepared in the usual manner. In a former article (See INDEPENDENT PRACTITIONER for November, 1884) I stated that all proximate cavities of the molars and bicuspids must be made accessible from their grinding surfaces, but at present I do not prepare any cavities for this method in a different manner from that for any other system of filling.

The introduction of the gold is the principal new feature of the Herbst method, and if certain general rules are observed this becomes quite simple. It is probable that some dentists who have made a failure in their experiments with the Herbst system have done so because of their ignorance of the basal principles of the method.

During the introduction of the filling material, the gold, which (when unannealed) apparently shows no signs of cohesion, working as soft as tin foil when burnished, becomes cohesive. The reason for this I am unable to give; there is certainly not enough heat developed to cause it to become cohesive, nor should electrical action during rotation exert any material influence upon it. It is certain that Wolrab's German gold possesses this property in a very marked degree, and it is largely owing to this that the Herbst method is crowned with success.

The main rule to be observed in the starting of a filling is, that the first layer must be sufficiently large, so that when condensed it will lie securely in the cavity without being supported by an instrument. When too little gold has been put into the first layer, or

when a number of too small cylinders are used, and an attempt is made to condense them, the gold will roll about under the instrument, and become too hard to be again adapted to the walls and edges of the cavity. The same condition will be observed when the first hand instrument used in condensing the gold has been too small.

The Herbst hand instruments, while pressing hard upon the gold, are rotated in the hand about one-half or three-quarters of a turn, but the Abbott instruments are merely moved from side to side. By a rotary motion the gold is much better condensed than by simple pressure. Before the hand instruments are used upon a newly added layer of gold, they should be rubbed upon a piece of No. 1 sandpaper. After the gold has been thus condensed, the perfect adaptation is obtained by the roof-shaped or conical point in the engine. This instrument is to be ground upon an Arkansas stone or a piece of sandpaper while revolving, holding it in about the position a pen is held upon the paper while writing. After it is passed over the sandpaper or Arkansas stone, and is perfectly clean, it is, while rotating, pressed upon the gold, condensing it thoroughly into every depression of the cavity. In condensing, this instrument should not be held upon one spot, but be moved around, and especially along the edges of the cavity. In using these points care should be taken that the engine is not run too fast, and that the burnisher, while in motion, is not allowed to be in contact with the gold longer than from one to three seconds, lest the gold be heated to such an extent as to cause discomfort, or even great pain to the patient. When the first layer of gold has been thoroughly condensed with the roof-shaped instruments, the hand instrument No. 5 (Fig. 1), while rotating, is pressed firmly around the edges and depressions of the cavity. If this makes any deep pits in the gold, it proves that in these places it was not perfectly condensed. and a smaller roof-shaped instrument than that used in the first instance should be employed in the engine to condense these places. All deep pits present in the first layer of gold should now be filled up with very small gold cylinders, and thoroughly condensed until the surface of the gold is even. All succeeding layers of gold are manipulated in the same manner. In some situations, as in the buccal walls of molars and bicuspids, when the gold cannot be condensed by direct action of the instrument, the right angle attachment, or an Abbott hand instrument should be employed.

When a number of layers have been secured, and all the walls and edges of the cavity are covered, it will sometimes be found necessary, if the operation is to be concluded by the Herbst system, to slightly warm or anneal the gold. In view of the results of the experiments made, I deem it safer, especially for a beginner in this system, to finish an operation in the old accustomed manner. The experiments have demonstrated that the walls of a cavity, when filled by the Herbst system, are more perfect, although the plug does not weigh quite as much as one made by the mallet. Although we know that the specific weight of a gold plug is not of great importance, yet the more solid a filling is upon the grinding surface the better it will wear.

Tin is introduced in the same manner as gold, either in the form of foil, or as Robinson's metal. Nos. 4 to 6 foil is cut in half, and is made into a rope with the fingers or a napkin, and cut into pieces of the desired length, which ought to be used when prepared, as tin oxidizes when in contact with the air for any length of time.

About six months ago Herbst sent me the preparations which I now exhibit. They are tin fillings, coated with a layer of gold. He then supposed that he had discovered something new, but you are aware that this combination of tin and gold has been in use for many years. Tin, as a filling material, has some very desirable properties. I have, therefore, of late used a thin layer of it upon the cervical portion of every proximate cavity where it is out of sight. For this the Herbst method offers special advantages, as a very thin layer of it can be burnished around the edges and walls of the cavity very perfectly, and with great ease.

I will now describe the method of filling special cavities.

I. Distal surfaces of bicuspid and molar teeth, involving the proximate and grinding surface. After the cavity has been prepared in the usual manner, and the rubber dam has been adjusted, the matrix is applied in the manner mentioned above. This being in place, and the cavity having been thoroughly disinfected and dried, everything is ready for the introduction of the gold. Two, three, or four large gold cylinders are loosely placed in the cavity with a pair of foil tweezers, then a hand instrument, either Herbst's or Abbott's, as large as the entrance of the cavity will admit, is cleaned upon fine sandpaper, and with this, while rotating, the gold is

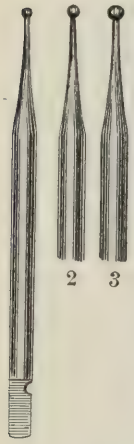
firmly compressed, first into the bottom and then against the side walls of the cavity. The gold is then thoroughly condensed, especially against the matrix and edge of the cavity, with one of the roof-shaped instruments No. 5, (Fig. 1), and, as mentioned above, examined with the thinnest hand instrument. In this manner layer after layer is introduced until the cavity is filled. If desired, the last layer may be packed by the mallet.

II. The introduction of gold into cavities involving the mesial and grinding surfaces of molars and bicuspids is a little more troublesome, although when the Abbott instruments are employed the filling of these cavities is simplified. The anterior edges and walls of the matrix in these localities cannot always be reached by direct action of the engine. A roof-shaped instrument in the right-angle attachment is therefore indispensable, which, while rotating, is firmly pressed forward against the matrix and edge of the cavity.

III. Occasionally we meet with cavities in the mesial or distal surfaces of bicuspids, near the gum, which, if the tooth structure between the cavity and grinding surface is strong enough, may be filled from the buccal surface. In these instances we use as a matrix a thin piece of clock spring, about one inch in length, and push it between the two teeth. If the cavity is situated in the distal portion of the first bicuspid, the buccal end of the steel-spring matrix is bent backwards as much as possible, around the second bicuspid, that it may not obstruct the entrance of the cavity. When the cavity is situated in the mesial portion of the second bicuspid, introduction of the gold is accomplished in the same manner as described above.

IV. The packing of gold in cavities upon the grinding surfaces of molars is somewhat different. The first layer introduced must extend over the whole surface, and be sufficiently thick to lie quietly when the instrument No. 5, (Fig. 1) is used to condense it into the several depressions of the cavity. To facilitate the packing of the succeeding layers, the gold cylinders may be warmed, or even slightly annealed. When the operation is nearly completed, I would advise, especially for beginners, that the filling be finished by the mallet.

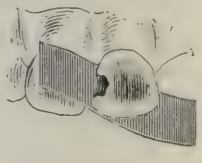
V. Proximate surfaces of the incisors can be very easily and quickly filled by this method. The cavities are prepared in the same manner as for filling by any other system, but no deep starting points are made, a slight round undercut at the cervical wall and one towards the cutting edge of the cavity being amply sufficient. The separation required for this method is not more than when the cavity has been prepared for other methods. Herbst fills all these cavities with a No. 5 instrument, but I use a burnisher made exactly like a small round bur, which works very satisfactorily. (See Fig. 10.)

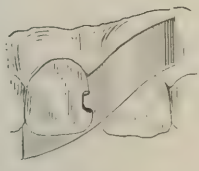


(Fig. 10.)

When there are two cavities to be filled which face each other, a matrix made of a thin piece of clock or watch spring may be used to great advantage. This matrix may be either inserted into a piece of shellac (See Fig. 7), or it may be used in the same manner as described in paragraph III. Herbst formerly filled two opposite cavities of incisor or bicuspid teeth in the following manner: When the first layer in both cavities had been thoroughly condensed, more gold cylinders were added in both cavities, and condensed as though there were but one. When sufficient gold has been introduced the two fillings are separated by a No. 15 (Fig. 1) instrument (an ordinary fine sewing needle secured in a mandrel or chuck), which, while rotating, is pressed through the median line of the fillings in several places. The two fillings are further separated by means of a thin clock-spring saw, the edges thoroughly condensed with one of the pointed burnishers Nos. 12 to 14, (Fig. 1), and finished.

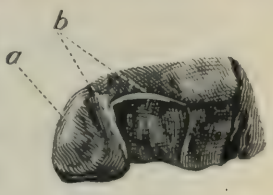
(Fig. 11.)




(Fig. 12.)

VI. Proximate surfaces of incisors with broken lingual walls are comparatively easy to manipulate when a matrix is applied to the broken wall. This may be made either of shellac, a piece of thin clock spring, or Brown's metal, as described in a preceding paragraph. When the labial wall of an incisor is not broken away, the cavity may be opened and filled from the lingual surface, thus avoiding the appearance of gold on the labial surface, and the annoyance and loss of time in wedging. If the teeth stand in such close

proximity that they will not admit a fine finishing strip, a small wooden wedge must be inserted near the gum, after which the cavity is prepared and filled in the usual manner. When there are two cavities facing each other to be filled, a thin clock-spring matrix should be inserted between the two cavities in the same manner as when they are to be filled from the labial surface. (See Par. V.) If a cavity is situated in the mesial surface of a right upper central incisor, the clock-spring matrix (about one inch long and wide enough to cover the cavity) is inserted between the two centrals, when the labial portion of the spring is bent over the labial surface of the right central (the tooth to be filled), while the lingual portion is bent against the lingual wall of the adjoining (left) central.



(Fig. 13.)

VII. When, however, the labial as well as the lingual walls of incisor teeth are broken to such an extent that the gold can be easily packed from the labial surface, a matrix, represented in Fig. 13, or in some instances the above-mentioned clock-spring matrix, may be employed. The gold is introduced in the usual manner.

VIII. Contour operations of the cutting edges of the front teeth have only been accomplished within a comparatively short space of time. When I last saw Herbst, I showed him a patient for whom I had inserted in the lower jaw five or six very large fillings. Two of the centrals were largely contoured, and this was the first work of the kind he had ever seen. Herbst was quite surprised when he saw these operations, and remarked: "I will not rest until I can produce the same operation with my method." Two weeks later, while in Vienna, I received the lower centrals which I now exhibit. You observe that it is a very large contour operation, and it is similar to the one I showed him in the mouth of my patient. This proves that gold can be built up by this method, but how it will stand in the mouth, time only can tell. One of the preparations sent by Herbst, involving the mesial, distal, and about one-sixteenth of an inch of the cutting edge of an upper incisor, only required forty minutes' time for the introduction of the gold. This method, therefore, may save a very great deal of time and labor. The principal difficulty in these operations is the making of a proper matrix.

When this has been accomplished the filling is comparatively a simple matter. The matrix is prepared of shellac. (See Figs. 9 and 13.) The proximate walls, as well as the cutting edge, are enclosed by pieces of watch spring fastened into the shellac matrix of the lingual wall. When thus arranged these cavities form a simple cavity with four side walls, into which the gold is easily packed.

Dr. Brockway—Do you use single cylinders?

Dr. Bodecker—That varies with the size of the cavity. In small cavities one cylinder is sufficient, but in large ones we may safely employ two or three large cylinders in one layer, and be able to condense them perfectly. If I had the proper instruments here I would extract a few of the fillings from these preparations of Dr. Herbst.

For the present, I do not make contour operations altogether by this method, because I want to be careful, and not experiment on my patients any more than I am justified in doing. The walls and edges of a filling, when made by this method, are better than anything I can do with the mallet. But when the operation is finished with the mallet, I am sure I run no risk, and I save at least half the time I would have used if I had filled the entire cavity by the mallet system.

I desire to mention that Dr. Herbst made most of the preparations exhibited here to-night expressly for this meeting. He sends his cordial greetings, and hopes that every one of you may be benefited by these specimens.

ON THE AVAILABILITY OF CERTAIN ANTISEPTICS IN THE PROPHYLACTIC TREATMENT OF THE ORAL CAVITY.

BY PROF. W. D. MILLER, BERLIN.

In the INDEPENDENT PRACTITIONER of 1884, page 283, I published a table giving the results of a series of experiments on the antiseptic action of a considerable number of agents used in the treatment of the oral cavity. A few new materials have since been added to the number, and I here reproduce the complete table, in order to institute a comparison between the relative powers of the materials experimented upon:

ANTISEPTIC AGENTS.	DEVELOPMENT OF FUNGI PREVENTED.
Bichloride of mercury	1–100,000
Nitrate of silver	1–50,000
Peroxide of hydrogen*	1–8,000
Iodine	1–6,000
Iodoform	1–5,000
Naphthalin	1–4,000
Salicylic acid (Crystals)*	1–2,000
Oil of Mustard	1–2,000
Benzoic acid*	1–1,500
Permanganate of potash	1–1,000
Eucalyptus	1–600
Carbolic acid	1–500
Hydrochloric acid	1–500
Biborate of soda*	1–350
Arsenious acid*	1–250
Chloride of zinc	1–250
Lactic acid	1–125
Carbonate of sodium	1–100
Listerine*	1–20
Alcohol	1–10
Chlorate of potash*	1–8

It must, however, be apparent to every one, that the real value of these antiseptics should not be put down as proportional to the numbers in the above table. To say that the bichloride of mercury is, for dental uses, two hundred times as efficient as carbolic acid, would be as inadmissible as to say that dynamite is, in proportion to its greater power, more valuable for industrial purposes than are horses. The question of the availability of different forms of energy, which has long been one of greatest interest to physicists, merits also, in the study of antiseptics, a thorough consideration. A partial solution of this question I have endeavored to present in the following notes :

The substances thus far experimented upon are bichloride of mercury 1–2,500 and 1–5,000; carbolic acid 1–100; permanganate of potash 1–4,000; peroxide of hydrogen 1–10; boracic acid 1–50; benzoic acid 1–100 and 1–200; salicylic acid 1–100 and 1–200; listerine undiluted; oil of peppermint and oil of wintergreen in agreeable strength for a mouth-wash. I have endeavored to take, in

* The substances indicated by a star were tested upon pure cultures of the fungus described in Vol. V, page 341, Fig. 2; the others on mixtures. In a general way stronger solutions are necessary to sterilize mixtures than to sterilize pure cultures.

each case, the highest concentrations which may be used in the mouth, either as a wash or on the brush. The one per cent solution of benzoic and salicylic acids (in twenty per cent. alcohol) is rather too sharp to be ordinarily used for rinsing the mouth, but may be applied on the brush; the same is the case with listerine.

Since in rinsing the mouth one does not usually keep the liquid in contact with the teeth for more than a minute, we need as an antiseptic mouth-wash a substance which is capable of devitalizing the fungi of the mouth in one minute, or less. The following method may be employed in making this determination: We procure;—1st, a tube containing a pure culture of some one of the more important fungi of the human mouth; we may call this the infecting tube. 2d. A tube containing 0,5 cc. of the antiseptic to be experimented with; this we may call the antiseptic tube. 3d. A number of tubes containing 5,0 cc. of culture liquid; we will call these the culture tubes. A small drop or bead is conveyed from the infecting tube to the antiseptic tube on a loop of fine platinum wire, and then, at intervals varying from one-quarter of a minute to fifteen minutes, beads are conveyed from the antiseptic tube to each of the culture tubes in succession (one bead to each tube). These tubes are then kept at the temperature of the oral cavity. If the fungi were devitalized by the action of the antiseptic, the culture liquid remains clear; otherwise, it becomes cloudy in a period varying from seven to sixty hours.

These experiments should be doubly controlled:

1st. Two culture tubes should be infected, using only sterilized water in the antiseptic tube. These two tubes should become cloudy in seven to ten hours, and if others of the tubes become cloudy in the same time, it indicates that the antiseptic through which the fungi were passed had no effect upon them. The retardation in the appearance of the cloudiness will give us a measure of the action of the antiseptic in those cases where it effected only a partial sterilization.

2d. The experiment should be repeated, using only sterilized water in both the infecting and antiseptic tubes. In this case the culture tubes should remain permanently clear. Should the culture tubes, however, become cloudy, it would indicate clumsy work on the part of the experimenter, and his experiments would be absolutely worthless. It is advisable to sterilize the air of the

room with vaporized sublimate before performing these experiments.

The results will be seen in the adjoined table. In the first column are given the antiseptics, and in the second the time of exposure necessary to a complete devitalization:

Salicylic acid	1–100	¼ minute.*
Benzoic acid	1–100	¼ "
Listerine, pure		¼ to ½ min.
Salicylic acid	1–200	½ "
Benzoic acid	1–200	1 to 2 "
Bichloride of mercury	1–2,500	½ to ¾ "
" " "	1–5,000	2 to 5 minutes.
Eucalyptus	1–200	5 to 10 "
Peroxide of hydrogen, 10 per cent solution		10 to 15 "
Carbolic acid, 1 per cent		10 to 15 "
Oil of peppermint		10 to 15 "
Permanganate of potash	1–4,000	over 15 "
Boracic acid	1–50	" 15 "
Oil of wintergreen		" 15 "

It is seen at a glance that of the substances tested in this series, only four are available for the prophylactic treatment of the oral cavity, particularly of the teeth. These are bichloride of mercury, benzoic acid, salicylic acid and listerine.

Of these four, I think the bichloride is without doubt the most effective, because its action continues longer. In the attempt to sterilize the oral cavity, a very serious difficulty is encountered in the fact that the antiseptic cannot, in many cases, be brought into contact with all portions of it; the free surfaces may become sterilized, but approximal surfaces, fissures, cavities, especially when stopped up with food and various deposits, escape the action of the antiseptic, unless it may be kept for some minutes in the mouth. It is here that the bichloride possesses an advantage; after the body of the liquid has been put out of the mouth, the traces remaining continue their action even after they have been diluted forty times by the oral secretions. It is also much more penetrating than the less soluble benzoic and salicylic acids. Any one may convince himself of the effectiveness of corrosive sublimate by a very simple experiment. Rinse the mouth thoroughly with a solution (1–2,500), keeping it one minute in the mouth. Half an hour later, by chew-

* Probably less time is necessary, but the transference could not well be made more quickly.

ing a small lump of sugar, secrete about 3 to 5 cc. of saliva, bring it into a sterilized test-tube, and keep it at blood temperature. It will be found, after twenty-four hours, that no fermentation has followed, though it usually shows itself in three to four hours.

Unfortunately, the bichloride of mercury possesses one great disadvantage in its highly poisonous character. It seems, however, scarcely possible that any harm could result from its use in so dilute a form. The maximum dose of corrosive sublimate, *pro die*, is 0,1 and if we suppose that each time the mouth is washed (once daily) 0,5 ccm. of the solution gets into the system (a very high estimate), then it would be five hundred days before the amount which may be administered in one day would be reached. As remarked above, one can scarcely believe that any bad effect could be possible, and yet the element of certainty is lacking, and though I use the solution myself constantly, even as strong as 1 to 1,000, I hesitate to recommend it to my patients. Considering the great interest which this question must have for every one, I would strongly urge members of the profession to test this matter upon themselves and report the results. In no other way can we satisfactorily solve the question. For self-experimentation I would recommend a solution of 1 to 1,000, with sufficient wintergreen to disguise the taste. It has, furthermore, been claimed that a solution of bichloride of mercury has power to decalcify the teeth. This, however, needs confirmation.

As to salicylic acid, it is claimed by some that it is injurious to the teeth; others deny that it has any effect of that kind. Buch (*Journal of Mat. Med., April*, 1880), after using a solution of salicylic acid in strength of 3 to 1,000 for some weeks, was obliged to discontinue its use, because he noticed "a curious feeling in his mouth; the teeth became softer and their surfaces rough through the formation of the salicylate of lime." On the other hand, a chemist in Berlin has used a much stronger solution for over ten years. His teeth, when he began, were in a most deplorable state, but in a short time he succeeded in arresting the progress of caries, of which there is at present not a trace in his mouth, while the old cavities are brown and hard. No evidence whatever of any action upon the teeth can be seen. It seems, however, pretty well established that salicylic acid is a substance which must be used in the mouth with great caution, to say the least.

Benzoic acid might be substituted for salicylic, provided it should not also turn out to have an injurious effect on the teeth.

Particularly noteworthy is the rapidity with which listerine acts upon the fungi; it appears to be one of the strongest and safest of the available antiseptic solutions. It owes its antiseptic property, in all probability, more to the boro-benzoic acid which it contains than to the eucalyptus oil.

In comparing the two tables given above, we notice what appear at first to be very great contradictions. Why does the peroxide of hydrogen, which in one series stands very high, fall so low in the other? and why should listerine, which is forty times weaker than the peroxide, kill the fungi thirty times quicker? I can account for this striking difference only on the supposition that the rapidity with which a given antiseptic acts is by no means necessarily proportional to its strength. Perhaps an imperfect analogy may be seen in the action of poisons upon the animal body, some of which produce almost instantaneous death, while others, equally fatal, act only after the lapse of a certain time. It is necessary, first of all, that the antiseptic pass through the cell membrane before it can act upon the cell contents. This passage takes place very quickly in case of some, very slowly in case of others, although the latter, once through, may act more powerfully than the former. We must also bear in mind that the proportions of the first table prevent only the development of the fungi, while in the second their devitalization is accomplished. There is a very great difference between the two. Many substances and conditions prevent, by their mere presence, the development of fungi, without in the least rendering them incapable of development when they are brought into the proper medium. We need, of course, for most dental uses, materials which produce a complete devitalization.

It is, furthermore, an important fact that the substance which is to be sterilized may so act upon the antiseptic as to materially lessen or completely destroy its power. In this respect the permanganate of potash is very sensitive. Again, an interesting question which has often come up in the course of the experiments is this: Is the strength of a given antiseptic proportionate to its concentration? i. e., is a two per cent. solution just twice as efficient as a one per cent. solution? My experience would teach me that this is not at all necessarily the case.

The most unexpected results were obtained with the peroxide of hydrogen. I hoped to find in it a substance which, as a mouth-wash, would far surpass anything at present available, but was very seriously disappointed, as the results were anything but satisfactory. It makes, however, a very *agreeable* wash, and I shall not myself give up its use until I have tested it on other fungi. Solutions of this substance are liable to deteriorate. One which I now have was as strong when fresh, in the proportion of 1 to 12,000, as it now is in the strength of 1 to 8,000.

COCAINE IN DENTAL SURGERY.

BY DR. H. TH. HILLISCHER, DENTIST, OF VIENNA.

The experiments which form the subject of the present article were undertaken by the author immediately on reading Dr. Koller's memorable communication respecting the employment of cocaine as an anæsthetic in eye operations, and were prosecuted with increased zeal and hopefulness after he became aware of the success attained by Dr. Ed. Jelinck, in the same field of observation. "Judging," he says, "by what I had learned from others, and had already confirmed by my own observations, I regarded it from the first as useless to attempt the employment of cocaine as an anæsthetic in the extraction of teeth, since it is a well-known fact that none of the substances which have been thus far employed for this purpose are sufficiently penetrating in their action to annul the pain of the operation, a pain caused in part by the laceration of the pulp, but principally by the stretching of the alveolar walls."

I contented myself, therefore, with instituting two separate sets of experiments, in order to ascertain, 1st, the effects of cocaine upon the tissues and constituent parts of the teeth, especially the sensitive dentine and the exposed pulps, and, 2d, its effects, both when applied endermatically to the buccal mucous membrane, and when subcutaneously injected into the same, and afterwards into its underlying osseous structure.

Thus far, I have applied cocaine-hydrochlorate in one hundred and fifty cases: one hundred and ten times to the teeth, and forty times to the gums and bones (in connection with extractions). The first series of experiments had been partially anticipated a couple

of years before, at which time I applied quite a number of tests for the purpose of determining whether excessive sensibility of the dentine and of the pulp could not be lowered by means of morphine and chloral hydrate. Not being satisfied, however, with the degree of success obtained in this direction, I refrained from publishing anything upon the subject.

In my latest investigations I made use of these results, applying cocaine-hydrochlorate in two and five per cent. watery solutions, in ten and twenty per cent. solutions of alcohol and water, and in a fifty per cent. alcoholic solution, in the form of powder, and finally, rubbed up into a paste with a trace of glycerine. I also combined cocaine with various proportions of chloral hydrate, viz.; two to one, one-half to one; likewise, with chloral and morphine, in the following proportions:

Cocaine 1, Chloral .05, Morphine ,01.
Cocaine 100, Chloral 5, Morphine 1.
Cocaine 1, Chloral 1, Morphine 1.

A two per cent. solution of cocaine applied to the dentine on pledgets of cotton-wool, or with a camel's hair pencil, obtunds the over-sensitiveness of the tissue in one or two minutes; morphine and chloral hydrate, in a highly concentrated solution, produce far less effect in a much longer time. The more sensitive the dentine the stronger the solution of cocaine which I had to employ. In cases of extremely sensitive dentine in young persons, and also in cachectic subjects, particularly when they were laboring under gastric catarrh, or convalescent from severe febrile diseases, especially at the commencement of the carious process, and also in the resulting affection of the pulp and subsequent complications with peridentitis, I was obliged to place pure cocaine, triturated into a paste with some glycerine, in the carious cavity, and let it remain there ten minutes or longer; in some instances even for twenty-four hours.

In these and in all other cases, the addition to the cocaine paste of a little morph. mur. (best in the proportion of two to one hundred of the cocaine) strikingly increases and hastens the effect.

When the superficial dentine layer is thus anæsthetized, it may be removed by the excavator or the drill; in markedly successful cases the anæsthetizing of the dentine is so complete that the drill may be operated at its full power without causing pain. As soon

as sensitive dentine is again reached the application of cocaine is repeated, so much of the carious dentine is removed as can thus be done painlessly, and the procedure is repeated until the cavity has been properly cleansed and prepared for filling.

In this way I have frequently succeeded in cleansing and filling, at a single sitting, and without pain, large carious cavities for children, who, at first, would not allow their teeth to be touched. But even for adults the process of filling will generally lose much of its terrors if cocaine be employed for benumbing the sensitive dentine in place of electricity and the various caustics and narcotics, all of which have failed to effect the object.

Exposed pulps, I found, were considerably less painful after being touched with a five per cent. solution of cocaine (to which I subsequently added morphine); even highly inflamed and swollen pulps I was enabled to cap (by way of experiment), after treatment with the paste of cocaine and glycerine, although, as was foreseen, the narcotic exerted no influence over the course of the pulpitis. Ulceration and destruction of the pulps of the teeth, and incipient peridentitis, always demanded extirpation of the pulp.

Hence, I was led to devise a new method of procedure, in connection with which cocaine will become indispensable in conservative dentistry. If the exposed pulp was already so inflamed as to show little prospect of healing, and in every case as soon as signs of disease of the roots were apparent, I first anæsthetized the pulps superficially with concentrated cocaine-solution, or with the paste, until I could painlessly remove the roof of the pulp-cavity. I then injected, either into the wall of the nerve-canal or directly into the pulp, inserting the point of the Pravaz syringe into the anæsthetized pulp-head, a solution of cocaine, of twenty per cent. or more. In two minutes I was enabled to remove the entire pulp with the nerve-extractor, without giving the patient any pain. Although I have extracted only six teeth in this manner, the full success obtained in all these cases leads me to believe that the process is generally applicable. How great an advance is shown in this method when compared with the use of arsenic, or the barbarous expedient of tearing out the living pulp with the excavator, is evident on the slightest reflection.

The high degree of sensibility in the "cuneiform defects" of the "collum dentis" I could often mitigate considerably by touching

them with cocaine solution, but thus far I have not been able to remove it altogether, even by means of the paste.

In my second group of experiments—upon the application of cocaine to the soft parts of the mouth and their bony foundation—the favorable results obtained were generally only of brief duration, as, indeed, was to be expected, in view of this agent's very restricted range of operation, both as to place and time, when locally employed. A burning sensation, proportioned in degree to the amount of alcohol in the solution, is first experienced for a few moments on contact of the latter with the gums. It is succeeded by a feeling of formication in the affected mucous membrane, which is then loosely distended, and gradually becomes insensible, unfortunately, for a short time only. If it is desired to prolong this effect, the cocaine must be frequently rubbed in at short intervals. In large and small non-specific ulcers of the buccal mucous membrane (thrush, aphthæ, etc.), which are often exceedingly painful, the contact of the concentrated solution of cocaine causes a sharp but momentary sensation of burning, followed, after several repetitions of the treatment, by considerable alleviation. For painful extraction wounds, I place in the tooth cavity pledgets moistened with a weak solution of carbolic acid or chinoline, and with a ten per cent. solution of cocaine. In chronic periostitis with great painfulness, I rub in, after the epithelium has been macerated with iodine employed to promote absorption, a concentrated solution of cocaine, or cocaine in substance, and have frequently obtained good results from this endermatic application of the remedy.

Finally, I injected subcutaneously, in two cases of considerable local painfulness, proceeding from bicuspids affected with periostitic exostosis, a syringeful of a five per cent. solution of cocaine, with speedy and permanent success.

THE TEETH OF DEAF MUTES.

BY J. HOWARD REED, D. D. S., M. D. S.

Deaf mutes are found in all the walks of life. They number in their community skilled artisans, artists of pen and pencil, editors and poets of no mean reputation; and it may be of interest to know that the ball-lock device on pocket-books was invented by one of their number, and several bright minds are following professional

pursuits. The immediate cause of congenital deafness is malformation, misplacement, a faulty arrangement, or want of the hearing organs; lack of constructing material, a thickening of the membranes, or the inner chamber of the ear being filled with mucous or bloody matter instead of the limpid fluid which ordinarily exists there, also rank as causes. Accidental deafness may be caused by mechanical or local means. But the most deadly enemy to the hearing organs is fever, in its various forms. About one-half of the cases of accidental deafness are caused by scarlet fever. This class of diseases produces deafness by inflammatory action upon the auditory nerves and that portion of the brain to which they are attached, ending in paralysis or insensibility of the nerve to sound. Mental trouble may affect the intellectual brightness of a person without in the least affecting his hearing.

Studying the antecedents of deaf mutes, three facts are of note; first, that the largest number of congenital deaf mute children are born of deaf mute parents, or about ten per cent. of the births under the named circumstances are deaf mutes; second, that the next largest number of congenital deaf mute births come from a blood marriage of the parents; third, that the third largest number come from one of the contracting parties to a marriage being a deaf mute, and in this latter case there is only a slight tendency for its transmission. These people possess quick and violent tempers, and show the traits of jealousy and sensitiveness, determined, however, according to the refinement of their surroundings. These traits are not an abnormality, but naturally arise from the fact that they are a people who are seldom sought after by the hearing and speaking.

The first thing in history relating to the teeth of deaf mutes that it has been my fortune to come across, is that of the case of James Mitchell, a boy congenitally deaf, dumb and blind; the only sense of sound that he could recognize was that conveyed to him through the medium of the teeth. The most noticeable circumstance of his childhood was his evident eagerness to strike upon his front teeth anything he could lay his hands on. This he would do for hours, and he seemed particularly gratified if the article was metal, or a hard substance that would give a sharp sound. His favorite play was to allow a key to vibrate between his teeth, suspended from a string. A musical snuff box being given him and placed between

his teeth, seemed to afford him exquisite delight. When the notes would end he would still examine it with his tongue and fingers, with great curiosity. It is a common thing among deaf mutes to awaken the sensations through the vibrations of sound caused by metallic substances coming in contact with the teeth. Examining closely the dental characteristics of deaf mutes, there will be nothing that will pointedly strike you. The dark-bronze yellow tooth will always be associated with the pronouncedly bilious temperament. A bluish-white tooth will generally tell us the nervous person, and the merry red face and sanguine temperament have teeth of a cream color. Occasionally a departure from this rule will be found, and you may even see the characteristics of two or three temperaments represented in as many teeth. This latter abnormality, however, has no relation to the general color line of the teeth, which, on the average, is excellent. The quality of the teeth is slightly below the average, and those teeth, mainly, are affected only where the physical make-up is such as to encourage the ravages of decay. Take twenty per cent of the deaf mutes, and you will find some curious forms given to the teeth. One will present a mouth with the superior incisors perfect in every respect, and having the lower incisors perfect in color and shape, but dwarfed to one-third their normal size. A second patient will present with four stumps of centrals, and having the laterals towering up like guardian giants. In one or two mouths almost a perfect picket-rail fence has been seen, extending from the median line to as far as the first or second molars, with the cusps of the bicuspids and molars like a chalky formation. The certain scarlet-fever marks on the teeth cannot be mistaken; frequently the bicuspids will show the marks on the four or eight teeth, presenting that yellow or light brown color, much as if the tooth was entirely robbed of enamel. Some teeth look as if nature had declared perpetual warfare against syphilitic tendencies and inheritance, and the effects of scarlet fever on them. Three or four cases have been observed in which the six anterior teeth, both upper and under, presented the appearance of graduated steps that seemed almost mechanical in their precision. The only physical abnormality about a deaf mute is the lack of expression about the face, with a look of stolidness. The muscles of the facial region appear well developed, more particularly those of the eyes and mouth, as might be expected when it is remembered

that they are put to constant exercise in the endeavor to convey their impression and give expression to thought. Peculiarities in the articulation are often present. Eruption is delayed on the average about two years in the bicuspids, and all the teeth are more or less delayed in their appearance. Decay of the teeth occurs, but it is more slow in its effects than in the teeth of the hearing and speaking. One thing will impress you upon examining the mouth of a deaf mute, and that is that either the fissures in the back teeth are ground perfectly smooth, are obliterated, or only slightly distinct, or the front teeth show exceeding great wear, and frequently the entire set of teeth is one continuous row of flat ivory. Irregularities do not occur in any larger percentage than in the teeth of children with all their faculties. Their teeth are very sensitive, apparently at the expense of their hearing powers. In artificial work it is necessary to study strength with the maximum of bulk, instead of strength with the minimum of bulk, as it is essential to have strength to withstand the great strain to which deaf mutes subject their teeth, and as the matter of space for the vocal organs need not be taken into account. To sum up, I have myself found deaf mutes anything but desirable as patients. I can perform all operations pertaining to dentistry upon them, but a certain tact and judgment is necessary, and all heroic treatment must be absolutely avoided.

MENTHOL IN DENTISTRY.

BY C. E. H. PHILLIPS, D. D. S., NEW YORK.

Any addition to the list of dental remedies that assist in combatting disease and relieving pain is always desirable. Presenting some claims for consideration and trial is the "Peppermint Camphor Menthene," more generally known as "Menthol." In the March number of the INDEPENDENT PRACTITIONER appears a report of the gratifying results attending the use of a solution of menthol in cases of pericementitis and alveolar abscess, by a dental practitioner; also stating that Dr. Hungerford, a physician, had relieved an aching tooth with the same agent.

Not long since a patient presented himself at my office for a general inspection of the teeth, and directed attention to a superior bicuspid, which had given much pain. Having a menthol "pen-

cil," the patient had endeavored to relieve the disturbance by applying the same upon the face, over the offending member, but with no result save the cold sensation produced by the volatilization of the agent. The pain having become more severe, the patient then raised the lip and applied the pencil directly to the gum. Here the sensation produced was described as warm and grateful, with a marked diminution of pain in a short time, which, after a second application, entirely ceased. I have employed the solution from the formula suggested in the journal, both simple and combined with other medicaments, with good results.

In cases of facial neuralgia, as a topical application over the nerve track, it is often highly gratifying, and particularly is this the case when the cause originates within the oral cavity, where it may at the same time be employed.

A trial of a *good* menthol preparation will place it in the medicine case of the dental practitioner as an agent of no little value.

Reports of Society Meetings.

SOUTHERN DENTAL ASSOCIATION.

SEVENTEENTH ANNUAL MEETING, AT NEW ORLEANS.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY MRS. M. W. J.

(Concluded from page 372.)

THIRD DAY.

Thursday, April 2d, being Dentists' Day at the World's Exposition, no regular sessions were held, the day being devoted to sight-seeing, speech-making and dining, the members being guests of the dentists of New Orleans. A delightful day was passed, and all returned, refreshed and invigorated, to their labors on Friday.

FOURTH DAY.

Friday was set apart for Clinics and the Exhibition of Appliances. Mr. J. W. Selby, of the S. S. White Dental Manufacturing Co., furnished the hall with all the necessary chairs, brackets, spittoons, etc., and several clinics were given, commencing at 9 A. M.

Dr. Wm. N. Morrison—Illustrated the method of filling root-canals, as explained in his paper already given. A committee had been appointed to prepare the teeth for filling. They had selected those with the most tortuous roots, abounding in sharp angles and crooked twists and turns, without crown cavities, and had imbedded them in blocks of plaster of paris in such manner as to afford no clew to the form of the roots. The work of Dr. Morrison was closely watched, and many were the predictions of failure. He drilled an opening through the center of each crown, not much larger than a pin-hole, through which he removed the contents of the root-canals, and inserted his fillings of gold wire imbedded in a solution of gutta-percha in chloroform. When the work was finished the plaster was broken away and the teeth critically examined. There was not one failure, and the verdict was unanimous that Dr. Morrison had done all that he claimed to be able to do. Whether anyone else could do it remained an open question.

Dr. E. Parmly Brown—Gave a clinic with the electric mallet and spring pluggers of his own device, so fashioned and tempered as to have a very elastic spring above the point, obviating the danger of crumbling frail margins of enamel. The separation for knuckling was obtained by the force of the gold, driving the teeth apart at the point of contact without any preparatory separation. A tooth of which a large portion of the crown had been filed away was rebuilt in gold, restoring the contour of the cusps and masticating surface.

Dr. Bonwill—Gave a clinic with his mechanical engine and mallet, of which the reporter failed to obtain the details.

At 3.30 P. M. the meeting was called to order, that those having appliances to exhibit might have an opportunity of explaining their merits.

The chairman of the committee, Dr. H. J. McKellops, stated that there were many interesting and valuable inventions and methods on exhibition; that time and trouble had been expended in getting them together, and he hoped that all would feel interested in them.

Among the articles may be named a simple and ingenious articulator, by Dr. Westmoreland, of Columbus, Miss.; a lathe head-piece (name of inventor not attached); a tooth-powder-bottle stopper, patented by Dr. C. E. Kells, Jr., of New Orleans; a regulating spring, of piano wire, with a triple coil in the middle, in-

creasing the tension, and doing away with jack-screws, or the plate which steadies the wire on the Coffin plan. This is the invention of Dr. E. S. Talbot, of Chicago. A new mouth-piece for the administration of nitrous oxide gas, by Dr. Miles, of Charleston; by Dr. Williams, of Ky., a new motor power for engines and lathes, which gives great power and increased rapidity of revolution; by Dr. J. W. Smith, Newport, R. I., paper disks, with sandpaper rim; by Dr. B. S. Byrnes, Memphis, Tenn., a regulating appliance, consisting only of a very thin elastic band of 22 carat gold, worked around the first molar, or most available posterior teeth at either end, and indented with the interstices between the teeth, the constant, gentle pressure of the elastic band causing the anterior teeth to yield, the space gained being retained by straightening the band, shortening it as much as needed, and applying as before. Casts were shown indicating wonderful results in a very short time. This appliance was highly commended by Dr. McKellops. Dr. J. A. Robinson exhibited rubber plates lined with vulcanizable gold, preventing the contact of the rubber with the mucous membrane, thus avoiding its injurious results. Dr. Edwards exhibited specimens of very light elastic black rubber plates, made by a new method, which produces a highly polished surface, finished when it leaves the flask. Dr. J. R. Walker showed a modification of the Coffin plate, the spring so adapted as to be attached to the front teeth to draw them into place while the arch is being expanded by the action of the spring. Dr. Bonwill exhibited his mechanical mallet and engine. Dr. Morrison showed some interesting specimens of Japanese dental art. Also a gold crown that had been presented by him to the Southern Dental Association fifteen years ago, anterior to the present patents on gold crowns. Mr. J. W. Lambert exhibited samples of Listerine and menthated camphor, explaining their virtues. McKesson & Robbins, through Mr. Wm. Evans, exhibited samples of the muriate and oleate of cocaine, explaining their application in dentistry.

EVENING SESSION.

Dr. B. H. Catching, 3d Vice-president, in the chair.

The report of the Committee on Dental Literature was called for.

Dr. B. H. Catching—Read an interesting paper, emphasizing the importance of the literature of a profession to its growth and influ-

ence, the disadvantages under which a man labors who "thinks he knows it all;" showing the favorable status of the literature of dentistry as compared with that of the other professions, but deploring its shortcomings in some branches; namely, the text-books of materia medica and therapeutics, the ignorance of the average practitioner who is satisfied with carbolic acid, creosote, tannin, and arsenic, and the slowness of our periodical literature as compared with the electric facilities for the current news of the day, concluding that the monthly journal was too slow for the age, and that a weekly journal was needed.

Dr. E. Parmly Brown—In a few telling words, deplored the fact that so many from the North had failed to visit the World's Exposition, and eulogized the welcome he had received. His remarks were warmly applauded.

Dr. E. S. Chisholm—Read a second paper on Dental Literature. He spoke of the Index of the Cosmos, recently published, as affording an index to dental literature generally, in the great variety of topics presented. He said that while in our journals we are distinctive, in our text-books we rely too much upon medicine for both authors and teachers. That though in many of the branches we owe our fundamental knowledge to medicine, we have in our specialty got beyond borrowing so freely, and are returning with usury. Our own text-books are not deficient in quantity, whatever may be said of quality, eighteen new volumes having been added to the list within the year, either entirely new, or in thoroughly revised and re-written new editions. He spoke of the war waged upon advertising pages, but claimed that it was a gain, a free gift to the reader, telling him where to find what he most needed. He spoke of guarding the threshold of our colleges against the admission of illiterate, ignorant young men, who sought only the means of making money without honest labor.

The two papers elicited a lengthy and interesting discussion of the subject.

Dr. Spalding—Deplored the inferior quality of much of our professional literature and the incorrect precepts of our text-books, claiming that we depended upon medical men to write and teach dental students that of which they themselves are ignorant, and urging that dentistry bring forth from its own ranks men to teach and to write for its own students.

Dr. Robinson—Stated that in the dental college of the Michigan University all the members of the faculty were practical dentists.

Dr. Catching—Regretted that no samples of dental literature were ever exhibited at associations; it should be a part of the work of the Committee on Dental Literature to procure copies of all new works from the publishers, to form part of their report at each annual meeting.

Prof. J. Taft—Reviewed the immense strides taken in journalistic literature in the past forty years, both in quantity and in quality, from the one journal of forty years ago, to the twenty-one of to-day. He urged that every man should keep a record of every step in advance. Let those who are not satisfied with our present literary status try to make it better—no one would hinder. He regretted that there were no elementary books; books fit only for experienced professional men were all that we had for students. Any one who would prepare graded books for dental students would achieve a great desideratum. The nomenclature of anatomy and pathology should also be anglicized. Students require aids to rapid progress.

Dr. J. J. R. Patrick—Thought the student should be well grounded in elementary principles of science in the high schools before entering the colleges.

Dr. J. R. Walker—Thought elementary instruction in hygiene was needed in our primary schools,to enable students to pass through the high schools to the college with sound minds in sound bodies, success in after-life depending upon health of body as well as cultivation of brain.

Dr. E. S. Chisholm—Our literature is what we make it. The supply is evolved from the demand.

Prof. J. Taft—Elementary science, as taught in high schools, gives a mere smattering. Graded text books are needed. Prof. Ford, and others, have prepared question books as guides to study, taking the present text-books as statements of facts to be discovered by the aid of the question books.

Dr. Spalding—Much that is now contained in the text-books is erroneous from a modern standpoint. We must draw from our own ranks, and train our own authors.

Dr. Patrick—The present standard works are designed for the

general practitioner. They are not guides to any specialty, as of the eye, the ear, or the teeth.

Dr. A. W. Harlan—Dental students are not school-boys to be taught mere rudiments. We have books enough, but we do not study them. There is too great a multiplication of primers already. What we need is modern revisions of our present works, and a closer study of them.

Dr. B. H. Teague—Moved the recognition by the Association of the work of "Mrs. M. W. J.," entitled "Letters from a Mother to a Mother," a work of national reputation and world-wide fame.

Prof. J. Taft—Moved, in addition, the recommendation of the book to all practicing dentists, for general circulation.

Dr. C. W. Spalding—The work is the best of its class. It has no equal for placing in the hands of mothers.

The motion as amended was passed unanimously.

"Mrs. W. M. J." was introduced to the Association, and tendered her thanks for the compliment paid.

The subject of Dental Literature was passed.

Dr. McKellops moved the discussion of the subject of Dental Ethics, condemning the signing of certificates to the merits of secret preparations, as an improper mode of advertising a professional man's name and address.

Nashville, Tenn., was selected as the next place of meeting, and the following named members were elected to serve as officers for the ensuing year:

President—Dr. W. C. Wardlaw, Augusta, Ga.

First Vice-President—Dr. B. H. Catching, Atlanta, Ga.

Second Vice-President—Dr. J. Rollo Knapp, New Orleans, La.

Third Vice-President—Dr. E. D. Hamner, Galveston, Texas.

Cor. Secretary—Dr. E. S. Chisholm, Tuscaloosa, Ala.

Rec. Secretary—Dr. R. A. Holliday, Atlanta, Ga.

Treasurer—Dr. H. A. Lowrance, Athens, Ga.

Executive Committee—Dr. G. F. S. Wright, Columbia, S. C.; Dr. W. H. Morgan, Nashville, Tenn.; Dr. W. H. Richards, Knoxville, Tenn.

"Mrs. M. W. J." was elected an honorary member of the Association.

The thanks of the Southern Dental Association were tendered to the Faculty of the Tulane University and the Board of Manage-

ment; to the S. S. White Co., through Mr. J. W. Selby; to the daily press of New Orleans; to the retiring President, Dr. A. O. Rawls, and to the Secretary and Treasurer; to the dentists of New Orleans, and to the Board of Management of the World's Exposition.

The Association then adjourned to meet on the last Tuesday in May, 1886, at Nashville, Tenn.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

SEVENTEENTH ANNUAL MEETING HELD AT ALBANY, MAY, 1885.

(Continued from page 323.)

WEDNESDAY EVENING SESSION.

After the reading of the minutes of the previous session, Dr. Chas. F. Ives read a paper upon the subject of "Pulpless Teeth," of which the following is a condensed summary :

I have no intention of going over any portion of the ground so repeatedly and thoroughly trodden by others on this subject, but rather to offer a few thoughts suggested to my mind after reading the articles in the *Medical Record*, and listening to the remarks of different members of the dental profession in reply.

Entirely agreeing with the verdict that physicians generally are far from being well posted in diseases of the teeth, I could not help wondering why these articles were written. It surely was not from any desire to snub us as a profession, nor to gratify any personal antipathy, and they were not altogether the result of clinical observation.

Back of all this there must have been some honest conviction which led to the attack; perhaps a succession of unpleasant experiences, the results of slow and wearisome endeavors to find a cause for certain pathological conditions, the tracing of which through various avenues leading to one common centre, resulted in certain convictions so strong as to cause the author to overlook the fact that, under other conditions than those existing, the results would perhaps have been different. For instance, if in their practice they meet with cases that baffle them in diagnosis and treatment, and

after having almost exhausted their skill in a vain attempt to get at the cause they reach the fact that there is at times an occasional approach to pain sufficient to be acknowledged, and if this general uneasiness is at last traced to a pulpless tooth which has been treated and filled, or to one in which an attempt has been made to cap an exposed pulp, or in which a metal filling has been placed too close to it, and if extraction at once relieves all the trouble for the alleviation of which the physician was called, the experience will naturally lead the physician to the conclusion that pulpless teeth are foreign bodies, and that the sooner they are removed the better. I have heard more than one assert experiences like this. Can we blame them? We know that if pulpless teeth are brought to a healthy condition and their roots filled as well as possible, the annoying cases are reduced to a minimum and there is no necessity for consulting a physician regarding any trouble from them.

What proportion of pulpless teeth can be honestly and intelligently treated and filled by the dentist? Of how many of the teeth coming to him can he say that he has done his best, regardless of time or remuneration? This is the serious side. To illustrate:— A gentleman on his way to have the first superior molar extracted, thought better of the idea, and came to me for relief. Having received it, he volunteered the following statement: Some four years before he had put himself in the hands of a New York dentist, who found an exposed pulp in this tooth. It had a large gold filling, but the applications for destruction and treatment were made through a cavity in the posterior approximal surface. In due time the dead pulp was removed, and an attempt made to enter the root canal. The palatal root offered but little difficulty, but the buccal was more of a task. After many trials the dentist told him they were entirely closed with secondary dentine. The palatal root was dressed, and a temporary stopping inserted. From that time on the tooth was a constant source of uneasiness. Some time after, the patient went to another dentist, who drilled through the crown filling, obtaining direct access to the root. Treatment followed with but little relief, and it was finally filled with gutta-percha. This was the history when he came to me. I removed the entire filling, and enlarged the opening until I had free access to all the roots. I found the entrance to both buccal roots, and followed them until the freedom from odor convinced me there would be no more

trouble. The palatal root was the seat of the whole distress. It was stubborn under treatment, and Carbolic acid or Iodoform left in it for a few days would lose identity. I went through the foramen with a drill made from a Donaldson bristle. A discharge of pus followed, and from that time it has continued to improve, and I hope will be soon in a condition to fill permanently. Well, what of it? Simply this. Do you honestly believe that if the dentist who destroyed the pulp had removed the crown filling and given the roots proper treatment and filled them, it would have given trouble? Could we look for success from treatment in any other way? It is such imperfect operations that send not a few to the physician with suspected neuralgia and other nervous diseases. They naturally result in the reporting of such operations in medical journals, with an editorial at the end, to the effect that "dentists should remember that the treatment of diseased tissues requires medical education."

It needs a great deal of patience and good temper to treat a refractory pulpless tooth. No operation so poorly pays. No operation draws more heavily on the nervous system, for it discourages as well as wearies, and it is at such times that the tempter draws near, and one needs all his moral strength to say, "Get thee behind me." If we are unwilling to give our best efforts, our greatest energy to the work, to devote the time necessary, then let us believe with the physicians that extraction is the best thing, and not pity their ignorance. If, on the other hand, we strive with honesty of purpose to do the best we can, we shall prove in a large degree successful, and show our medical friends that pulpless teeth can be made respectable members of oral society, even though they are slightly crippled.

The essayist then spoke of the different materials used for root fillings, stating that he never yet, in the removal of a filling, found any of gutta-percha, metal of any kind, wood or paste, that did not give forth a vile odor. He claimed that, so far as adaptation is concerned, a larger proportion could be perfectly filled with a solution of gutta-percha and chloroform than with any other material, but that it could not be made impervious to emanations. He had occasion to remove the filling and refill a superior bicuspid, the roots of which had been filled with cotton and creosote thirteen years before. As each portion of the filling was removed it was

passed close to the nasal organ, and found redolent of the antiseptic. He, therefore, put it down that cotton and creosote can be made to answer a good purpose. In his hands nothing has been so uniformly successful as a slow setting oxy-chloride of zinc, mixed to a moderate stiffness, carried to position on a fibre or two of cotton.

He has no sympathy with the practice that proceeds upon the principle that all root fillings should be tentative in character, put in place in the expectation of removal if it becomes necessary, or with that of providing a tap or vent hole. He would rather direct his energies to filling them as well as any other cavity.

Dr. Rhein—The admirable points in the paper just read have been, no doubt, understood by every one. There is only one thing of which I wish to speak, and that is in regard to what has been said about gutta-percha fillings in the root. I believe a root can be perfectly filled with gutta-percha, and give no trouble and no odor. I have removed gutta-percha fillings and never detected any odor. It depends a great deal upon the manner in which the tooth is filled. It is more satisfactory than anything I have ever used. With gutta-percha I can reach the very apex. After becoming convinced that there is no trace of putrefaction left, I introduce a little alcohol into the cavity. Having my alcohol lamp and hot air syringes handy, I dry the root out very thoroughly, so that it is warm, and then introduce the gutta-percha solution upon a platinum point. I fill up half the root in that way. I then fill the tooth with oxy-phosphate, which I prefer to the oxy-chloride, because it is easier to handle. I do not mean to say that no other filling will perfectly fill a root. I presume there are a hundred ways of filling them successfully, but what I assert is that gutta-percha fillings will preserve roots perfectly without taint.

Dr. Ives—I believe I stated that any filling could be used so perfectly that not the slightest odor could be detected at the time, but it will be offensive at the end of the year. You cannot make a gutta-percha filling that will not absorb, and if it does it will have an odor.

Dr. Rhein—I would like to inquire where the absorption could come from if you have a hermetically sealed cavity. I do not propose to say that imperfectly filled teeth will not act so, but I am speaking of an ideal operation.

On motion, the subject was passed. The Herbst system of filling

teeth was the subject next called, and Dr. Bodecker delivered the opening address. (See page 395).

Dr. Frank French moved that Dr. Herbst be elected an honorary member of the Society.

The motion was carried unanimously.

Dr. Wm. H. Waite, of Liverpool, England, was then introduced to the Society, and read a paper upon events connected with the dental profession in England. (See page 339, July number).

After the reading of his paper, Dr. Waite presented a resolution from the Midland Branch of the British Dental Association, extending their kindly greetings to the Dental Society of the State of New York.

Dr. Hill moved that the Dental Society of the State of New York receive with great pleasure the expression of the fraternal feeling of our English professional friends, and that the Secretary be instructed in return to convey to the Midland Branch of the British Dental Association our cordial salutations, and to express the hope that through the mediumship of their Secretary, who is also an esteemed honorary member of this Society, the personal and professional relationship between the members of the two bodies may become and ever remain a close and intimate one.

Dr. S. B. Palmer, of Syracuse, then spoke upon the subject of the discoloration of gold fillings. He referred to the various articles upon the subject in the journals, and said that it was desirable that the matter be better understood. He related various experiments which he had made, from which he was fully convinced that the most frequent cause of discoloration was iron. It was his custom, he remarked, when removing such fillings, to inquire of the patient the kind of food used, and it was usually found that it had been prepared in iron vessels. Iron is frequently given as a tonic, and inquiry will show that such patients frequently have discolored fillings. His theory was that the iron was deposited by galvanic action, and that the gold was extremly apt to collect it.

Adjourned till 9.15 o'clock.

May 14th—Morning Session.

The meeting was called to order, and the minutes of the last evening's session read and approved.

The committee to draft resolutions upon the death of Dr. J. G. Ambler presented their report.

After the transaction of the usual routine business, the regular order was called, and Dr. Frank Abbott, according to announcement, spoke upon "Dental Therapeutics." He stated that the subject was one so enormously large that it was impossible to give more than a sketch, and he could refer to but a few of the remedies used. After speaking upon the theories concerning the decay of the teeth, the use of antiseptics, and the treatment of diseases of the mouth, he referred to the different remedies used and the effects desired to be produced. Muscular rheumatism was almost entirely removed by the use of antacids. Bicarbonate of potash, given in from ten to twenty grain doses two or three times a day, would relieve it. Salicylate of soda would do the same. When taken, it seems to have a peculiar effect upon the teeth, relieving them of sensitiveness. Carbonate and muriate of magnesia are also valuable antacid remedies. The latter is very harmless, and if taken in tablespoon doses is a laxative. Rochelle salts is an excellent remedy, and sometimes has a wonderful effect within twenty-four hours. Lime water is another very pleasant remedy. Where teeth are so sensitive that they cannot be touched, if this be given, it is not improbable that the next day you can excavate without fear of pain. I might instance also bicarbonate of soda. I have never used a remedy that gave so much comfort to my patients as this, not even cocaine. Perhaps the best way to administer it is in compressed pellets.

Bichloride of mercury is the simplest antiseptic we have. In from 1 to 20,000 parts of water it will destroy septic-organisms. Use half a grain to twenty-one ounces of water. Iodoform and carbolic acid are very useful remedies, especially the latter.

Boracic acid, carbonate of soda, permanganate of potash, listerine, and other remedies were recommended. He frequently uses them in the form of a spray, thrown into the mouth from an atomizer.

To show the comparative antiseptic properties of the different remedies, he read from a list found in the book known as "Treatment of Wounds," by L. S. Pilcher, M. D., giving the advisable strength of the solution of the different antiseptics.

"Elements of Decay" was the next subject, and Dr. Barrett was called upon to open the discussion. This, he said, was such an extensive subject that he would only attempt to allude to fermentation and putrefaction. Decay was co-extensive with creation. In

the language of Dr. Atkinson, you cannot conceive of the "togetherness" of atoms without their "apartness." If brought together, it is because they were separated. If divided, it is because they were once together.

During the past few years the subject of micro-organisms has engaged the attention of some of the best minds of the human race. The infinitely small transcends the infinitely great. The microcosmos is infinitely greater than the macro-cosmos. We cannot comprehend it.

I draw a clear line of demarkation between fermentation and putrefaction. They are separate processes, though tending to the same end; they are produced by different means, and their action is essentially different. So far as I know, putrefaction is always brought about by micro-organisms, while fermentation sometimes is not. Fermentation is a disruption of cohesion. How this occurs we know not. Putrefaction is a decay of the atoms themselves. The two processes cannot exist together. Putrefactive organisms work upon nitrogenous matter, while the fermentative organisms do not.

The successful introduction of putrefactive germs in a fermentation or fermentative compound arrests that process. Let me instance the making of bread, or beer. Putrefaction means the entire spoiling of the fermentative production. Fermentation is largely the process of converting starch into sugar, and albumen into peptone.

As I understand putrefaction, it is the rapid and constant disruption of an organic substance, through the agency of fungi. Fermentation results in the production of a new substance, not necessarily through the action of fungi. One is destructive, and the other, although destructive, is at the same time constructive.

Dr. Bogue spoke upon the subject of Amalgam Fillings, referring to the various papers that have been published since 1882, especially mentioning those of Drs. Hitchcock, Talbot and Collier.

Amalgam fillings are found in the mouth uncorroded by iron or acid drinks. Sulphur collects upon amalgams, and blackens them, but it is from the effect of the acid. If amalgams are inserted with a good deal of mercury and a powerful pressure, it brings the mercury to the surface, and thence it may be carried to the stomach. I have read, within the past two months, of something like two pounds of mercury being put into the stomach by a tube, and in a

few days being discharged, and the patient recovered. I think we may safely assert that metallic mercury is harmless, unless it is converted into an oxide or chloride.

Dr. W. H. Waite exhibited to the Society specimens of false teeth connected by bridge work, found in an Etruscan grave, and which were pre-historic. He obtained them from the museum at Liverpool, after much trouble and correspondence.

The specimens were very interesting, and formed the subject of considerable discussion among the members present. It was voted that the thanks of the Society be extended to Dr. Waite for his trouble and kindness in bringing these curious specimens, and also to the proprietor of the museum for his courtesy in allowing him to do so.*

Dr. Atkinson then read a paper upon the subject of "Sponge Grafting." (An abstract of this paper will appear hereafter.—Ed.)

Permission was given the publishers of the Independent Practitioner to make abstracts from the reports and papers of the Society for publication.

It was suggested by Dr. Baxter that steps be taken to obtain rooms in the new Capitol, in which to hold the annual sessions of the Society, and a committee was appointed to look the matter up.

Routine business followed, after which the following officers were elected for the ensuing year:

President, Dr. F. B. Darby, of Elmira.
Vice-President, Dr. G. C. Daboll, of Buffalo.
Secretary, Dr. J. Edward Line, of Rochester.
Treasurer, Dr. H. G. Mirick, of Brooklyn.
Corresponding Secretary, Dr. W. H. Atkinson, of New York.
First District Censor, Dr. Wm. Carr, of New York.
Third District Censor, Dr. S. D. French, of Troy.

The newly-elected President was conducted to the chair by Drs. Hill and F. French, and introduced to the Society by the retiring President, Dr. Straw. He thanked the Society for the honor conferred upon him, and asked the pleasure of the meeting.

Upon motion of Dr. Atkinson, Dr. W. B. Hailes, Jr., was elected a corresponding member. Upon motion of Dr. Line, Dr. Alex.

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* The specimens exhibited by Dr. Waite were the ones which formed the subject of his article in the number of this Journal for April, 1885, and were similar to the ones forming the subject of the illustrations to Dr. Van Marter's paper in the number for January.—Editor.

Campbell, of British Columbia, was also made a corresponding member.

After the appointment of committees on Arrangements, Publication, and Dental Law, the Society adjourned.

Editorial.

THE MEDICAL CONGRESS OF 1887.

In the last number of this journal it was announced that the reorganized committee of the American Medical Association had dropped the section of oral and dental surgery from the list of sections established by the original committee. This action demands some notice on the part of dental journals. At the London meeting of 1881, our section played such an important part, it worked in such harmony with the other sections and contributed so largely to the distinguished success of that Congress, that we had no reason to doubt that, here in America, where dentistry has made such peculiarly rapid strides, where as a branch of medical science it was first organized, where the modern teaching of dentists as scientific men originated, here, among a people who claimed pre-eminence in practical advancement, our specialty would surely be given every opportunity to benefit by this convocation of all that was great in medicine. In London there was no distinction between the various sections. In free democratic America, it was anticipated that a section that would probably number more delegates than any other would be given peculiar facilities. We are happy to say that the Congress, as first organized by representative medical men, had fulfilled all expectations. It remained for a rump association to outrage respectable medicine by overturning that which had been established, and to attempt to found a World's Congress upon sectional issues. It shows a woful misconception of the character and purposes of the Congress when local quarrels and questions of personal bias are injected into the discussion thus early. They must indeed be men of narrow views who would force a world's professional assembly to take sides on a division of opinion among the physicians of the State of New York. Will Medicine as a whole never get above these petty squabbles? Will it never make

good its boast of being a learned profession, and rise superior to the pot-house wrangles which engage only minds of small calibre ?

That dentists may understand the present status, it is necessary that we explain some things that may not be known to all of them.

The International Medical Congress is what its name indicates—a council of the representative medical men of the world, which meets every third year. It knows nothing of medical societies or medical politics, but at each meeting accepts the invitation of the medical profession of some country to hold its next session with them. It is never the guest of any medical society, but it expects that the whole profession of the country in which it meets will join in advancing its interests. It is not intended to be a convocation of small men, nor is it anticipated that it shall be so used as to advance individual interests. Especially does it discourage all professional demagogism. In this country the American Medical Association, as the nearest approach to a national organization that we have, assumed to issue the invitations through a committee of representative men, who, in the event of its acceptance, were directed to complete an organization. This committee visited Copenhagen, where the Congress of 1884 was held, extended the invitation, which was accepted, and the committee thereby became an organizing committee of the Congress.

They returned home and proceeded to complete their work by adopting rules, establishing sections and appointing their officers. That this work was well done there can be no question. But upon the reassembling of the American Medical Association in New Orleans, in March last, in a place remote from the great medical centres, and where the membership for the year would necessarily be made up largely of those who were not conversant with the needs and feeling of the profession, it was found that a few determined demagogues, oily of tongue and reckless of the best interests of the profession, had secured control of the Association. They did not belong to the class of men who have made medicine what it is. They were in no sense representatives of the better part of medical science, and so they had not been appointed to commanding positions. But they were determined in some way to make the Congress personally profitable to themselves, and they accordingly headed a

movement which resulted in the undoing of all that had been done, and the appointment of a practically new committee, with themselves in the prominent positions.

The plea under which this was done was, that the organization of the Congress did not properly represent the country, and that some of the New Code men of the State of New York had been appointed to office. The speciousness of this claim will be seen when it is understood that this is not a political assembly ; it is not the *country* which is to be represented, but the profession of medicine, and such men should be chosen as best typify the great profession, no matter if they were all found in one city. If the back woods of Arkansas could furnish a man who could take rank with the leading minds of medicine, he should be chosen. But if not, Arkansas should wait until it could produce such a man. As to the factional issue of new or old codes, that was a matter with which the Congress had, and desired to have, nothing whatever to do.

But the new committee assumed the reins, and proceeded to reorganize the Congress, displacing some of the men whose fame is world-wide, and who cast a lustre upon medical science, and putting in their places some of the ambitious "outs" who were great only in their own conceit. They reduced the number of sections, dropping that of dental and oral surgery, or, what is the same thing, consolidating it with general surgery. The *Medical Bulletin*, of Philadelphia, which is edited by one of the leading spirits in the revolution, says : "The omission of the section of dental and oral surgery was judicious, dentistry not being generally recognized as a legitimate department of medicine." We may well be content to rest under his ban, when he is at known issue with very much that is reputable and honorable in medicine.

Anticipating censure, the new committee fortified themselves with the opinion of lawyers concerning the legality of their action. To what end ? What have lawyers to do with the ethics of another profession ? Did the committee propose to go to extreme legal limits, or was it their desire to do what was professional and right ?

As might be imagined, their proceedings have excited a deep and indignant feeling among the better part of physicians. The protests have been many and vigorous. The most of the leading medical journals have forcibly denounced the movement. Meetings of

leading medical men have been held in several of the large cities, and many of the most respectable of the appointees have announced that they will have nothing to do with the Congress as now organized. In Philadelphia, such men as Agnew, Bartholow, Brinton, Da Costa, Gross, Hays, Leidy, Mitchell, Stille, Tyson, Wood, and many others, with Yandell of Louisville, have formally withdrawn. The Philadelphia list of protestants alone includes four presidents of sections.

This action has been imitated in other cities, and so many eminent names have been withdrawn that it now seems demonstrated that, under the present organization, the Congress cannot by any possibility be made a success. The men now charged with the management of the Congress are believed to be incompetent, and they certainly do not possess the confidence of the profession, nor are they sufficiently representative of the intelligence of those for whom they assume to act. Therefore, as we said in the last number, it is probably as well that we are not involved in the quarrel. The only thing that remains is to see if the Congress cannot be rescued from the hands of those who have assumed its managment. But even this could not probably be done in time to re-reorganize with much hopes of making it what it should have been.

It is a shame and a scandal to medicine, that such a state of affairs can exist. But as long as such an organization as the American Medical Association, with its fluctuating, constantly changing membership, shall be the representative Association of American Medicine, we have little better to hope for. It is a complete political body, and, like all such associations, it is usually controlled by demagogues and wire-pullers. What medicine needs is a permanent body, that shall represent, not its tricksters and politicians, but its intelligence, its professional eminence, and its scientific attainments. This the American Association does not and cannot do, because its membership is founded upon geographical, and not upon scientific or professional representation. It now seeks to make the International Medical Congress but an enlarged session of this unrepresentative body. Should it succeed, the meeting would do well to act upon the old adage, *Ne sutor ultra crepidam;* and this for the occasion might be freely translated: "Stick the Shoemaker to his bench with his own wax."

THE TWENTY-FIFTH MEETING OF THE A. D. A.

The Minneapolis meeting promises to be one of unusual interest. The chairman of the committee of arrangements, Dr. Crouse, has been unwearied in his efforts to make of it a success, and all the dentists of the north-west are bestirring themselves to see that nothing is lacking that might enhance the comfort of the members, or add to the interest of the meeting. Very low rates have been secured upon the railroads, and unusual attention will be shown those who attend the meeting. Minneapolis is such an interesting point to visit, and there are so many places of interest in its vicinity, that a great deal of pleasure is anticipated, to say nothing of the profit of the sessions.

OUR BOOK TABLE.

A Guide to the Diseases of Children. By James Frederick Goodhart, M. D., F. R. C. P., Assistant Physician to Guy's Hospital, and Lecturer on Pathology in its Medical School. Physician to the Evelina Hospital for Sick Children. Revised and edited by Louis Starr, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Physician to the Children's Hospital, Philadelphia. With formulæ. Philadelphia : P. Blakiston, Son & Co., 1885.

The medical press is constantly offering to the profession new books upon almost every conceivable topic connected with medicine. Of these, too large a proportion, like Pindar's razors, are made to sell. There is no special reason for their issue, aside from the desire of pecuniary profit, and when this end is attained they quietly drop into a merited oblivion. Publishers contract to deliver books as illuminating gas is laid on—by the volume—and tomes are ground out like sausages, by machinery. Amid all this dreary waste of literary truck, it is gratifying occasionally to meet with a book for the existence of which there is a reasonable excuse. That the subject matter of the one under consideration is of the utmost importance, all will agree. It only remains to inquire if it be treated in a rational and instructive manner.

For a treatise upon the diseases of children, it must be evident that the points of observation should be mainly clinical. Philosophical disquisitions, and turgid, formal dissertations, are quite out of place. And herein lies the chief merit of Goodhart. While embracing the whole subject, and covering all the ground, there is

no appearance of a desire to make a special display of learning, and certainly there is no "padding." The work is a plain, common-sense treatise upon the diseases of childhood, and it may be implicitly followed as a safe and sure guide.

MARYLAND MEDICAL JOURNAL.

This is one of the best of the Weekly Medical Journals of the country. We always open it in the confident anticipation of finding something that shall interest and instruct, and that expectancy is never disappointed. To say that it is well edited implies very much more than the average reader can comprehend. It is only an editor who can appreciate the immense amount of labor involved in licking into shape the crude and carelessly written communications that make up the larger part of the contents of a journal. There is many an educated, cultured man, who cannot command language that shall read smoothly. There are a thousand inelegances of speech, colloquialisms, redundancies of expression and transpositions, to say nothing of gross grammatical errors and rhetorical inaccuracies, that the editor must correct, even in the manuscript of the best of writers. So much, too, depends upon the punctuation, the paragraphing, and the judicious use of capitals and different fonts of type, that a well edited journal becomes, to the initiated, a real work of art. A good editor is an expert in the use of language, and his journal gives evidence of the fact in every page. The casual reader, whose attention is directed to the euphonious language of an article and the elegance of its diction, perhaps little imagines that it is to the "editing" that his admiration is due. Especially in the reports of society meetings is this the case. What would speakers say if editors printed their speeches precisely as they are delivered, or even as they reach the editorial table in the reports? It is to this careful and able editing that journals like the one whose name is at the head of this article, and the *Weekly Medical Review*, owe much of their charm. The latter, in spite of the rather frequent change of editors, has always retained its literary merit. One of these journals is eastern, having its home in Baltimore; the other, western, hailing from St. Louis. They differ in characteristics, but are both alike in presenting points of excellence that amply account for their extended circulation.

THE PHYSICIAN HIMSELF, *and what he should add to his scientific acquirements in order to secure success.* By D. W. CATHELL, M. D., late Professor of Pathology in the College of Physicians and Surgeons, of Baltimore. Fourth Edition. Baltimore: Cushings & Bailey, 1885.

The popularity of this volume may be judged from the fact that this is the fourth edition that has been demanded. There are a thousand things that are requisite to the successful physician. Many a man of good general scholarship and great professional knowledge has seen himself distanced in the race of life simply because he lacked the practical knowledge, the worldly wisdom, the professional tact, the ethical information which it is the object of this book to inculcate. In reading it, one is led to wonder from what source Dr. Cathell draws all his lore. From the lessons of his own life? Has "long experience made him sage"? Is he to be pictured to the minds-eye with shining pate and flowing silver beard? Or are the shrewd aphorisms and the sapient instructions due to his observations of the habits and methods of eminently successful physicians? We incline to the opinion that he is a Lacon, and that his sententious advice and precepts are due to his own perspicuity and intuition. From whatever source they may be derived, there is no question about their value and importance. It is the duty of every physician who would succeed, to make a study of the art as well as of the science of medicine, and we could commend him to no better authority in the former than this book. When the whole of medical practice shall be taught in any school, it will, no doubt, be added to its list of text-books.

THE OLEATES. *An Investigation into their Nature and Action.* By JNO. V. SHOEMAKER, M. D. Philadelphia: F. A. Davis Att'y, Publisher, 1885.

The practice of inunction, or rubbing the body with oils and fatty substances, is of extreme antiquity. It has formed a part of the religious ceremonies of nearly all nations, and we know that from time immemorial the priests of different forms of religion have used their knowledge of remedies to supplement their sacerdotal influence. That there is medicinal virtue in particular oils has always been a matter of belief, and modern chemical science has separated the fatty acids and radical bases, and demonstrated their nature and action. It has even gone further, and united the

fats and oils with different drugs, and thereby produced a new class of remedies, which have proved very effective in the control of certain diseases, particularly affections of the skin. The work under notice is devoted to a consideration of this class of medicaments. Dr. Shoemaker has been largely instrumental in introducing them to the profession, and his book should be read by every one engaged in the healing art.

HAY FEVER, *and its Successful Treatment by Superficial Organic Alteration of the Nasal Mucus Membrane.* By CHARLES E. SAJOUS, M. D. Philadelphia: F. A. Davis Att'y, Publisher, 1885.

Many theories have been advanced to account for the origin of this peculiar and distressing complaint. Helmholtz believed it to be due to the presence of micro-organisms. Dr. Beard to a neurasthenic condition. Drs. Daly and Roe to a local chronic diseased condition. Dr. Harrison Allen to an obstruction, either permanent or temporary, of the passages. Dr. Mackenzie called it a periodic coryza. But the general impression has been that the condition is due to a special irritation induced by the pollen of plants. The author of this work believes it due to a variety of causes, which produce a changed and abnormal condition of the nasal and palatal tissues, and the treatment recommended is founded upon these etiological views. Hay fever sufferers, as well as physicians, may be greatly instructed and benefited by a perusal of this volume.

BERLIN AS A MEDICAL CENTRE. *A guide for American Practitioners and Students.* By HORATIO R. BIGELOW, M. D., Sandy Hook, Conn. New England Publishing Co., 1885.

So many practitioners and students are continually going abroad for the purpose of pursuing their professional studies, that a book of this kind will prove extremely useful. It gives complete information concerning all that it is requisite to know; routes of travel, expenses, means of living, telegraph and postal guides, a map of Berlin, with all necessary information concerning one's every day life there. It also gives an account of the advantages offered for professional study, of matriculation, lectures, clinics and hospitals. In fact, it is a complete *vade mecum* of its subject. Every intending tourist would do well to read it, but for the medical student who proposes to go to Berlin, it will prove essential.

Transactions of the New York Odontological Society for 1884. Philadelphia: The S. S. White Dental Manufacturing Company.

The papers and discussions of this society always attract much attention, for it is anticipated that, like a court of last resort, it will pronounce the final decision of the profession. It has in its membership so many men of exceptional intelligence, and comprises so much of technical information, that, no matter what may be the subject matter under consideration, something interesting and instructive is certain to be said. The volume for 1884 fully sustains the high reputation of the society, and makes a book well worthy of careful study. The imprint of its publishers is a sufficient guaranty for its typography and finish.

"Dental Caries — A Critical Summary." By Henry Sewill, M. R. C. S., L. D. S., England. A Review by F. Searle, D. D. S., Springfield, Mass.

Mr. Sewill is a dogmatic and positive writer, who speaks authoritatively from premises founded upon the observations of others. Without the technical knowledge that should give license to speak magisterially, he assumes to sit in judgment upon those whose work he has never personally verified or disproved. It is little wonder, then, that so logical a writer as Dr. Searle should pierce the joints of his harness in more than one place, and expose the weakness of declarations unsustained by actual demonstration. For every reader of Mr. Sewill's "Critical Summary," we would unhesitatingly prescribe the proper antidote — Dr. Searle's Review.

Manipulation of the Microscope. By Edward Bausch. Rochester, N. Y., 1885. Price, 50 cents.

The author of this little work is the well known mechanical optician of the Bausch and Lamb Optical Co. There are very few men who have so thoroughly mastered the mechanical branches of optical science, while in practical microscopy he possesses an enviable reputation. The book is an unpretentious one, and is principally devoted to the exposition of microscopical technics, but what it has attempted is exceedingly well done. As a book of instruction for microscopical beginners, it is not exceeded in directness and simplicity and perspicuity by any of the numerous works of the kind that have been issued.

The American Advertiser Reporter. Nos. 234 and 235 Broadway, New York.

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Disinfection and Disinfectants.

Preliminary report made by the Committee on Disinfectants of the American Public Health Association.

Open Letter from Dr. Edward W. Jenks *to* Dr. N. S. Davis, *Editor of the Journal of the American Medical Association.*

Does Tobacco produce Amblyopia? By W. Franklin Coleman, M. D., M. R C. S., Baltimore, Md.

Souvenir of the New York Odontological Society. Annual Dinner 1885.

Third Annual Report of the Illinois State Board of Dental Examiners.

Rules and Preliminary Organization of the Ninth Session of the International Medical Congress, to be held in Washington in 1887.

Programme of the Proceedings of the Thirty-sixth Annual Session of the American Medical Association, held at New Orleans, 1885.

Address delivered before the American Academy of Science at the Seventeenth Annual Meeting, held in Boston, November 5th, 1884. By Edward A. Harris, D. D. S.

Surgical Notes from the Case-book of a General Practitioner. By William C. Wile, M. D. Reprint from the *New England Medical Monthly.*

Reports of the application of Hydrochlorate of Cocaine in Ophthalmology, Otology, Laryngology, Gynæcology, Genito-Urinary, Nasal, Dental, and General Surgery. Compiled from Medical Literature. Parke, Davis & Co., Detroit and New York.

Current News and Opinion.

AMALGAM SOLVENT.

In the July number of the INDEPENDENT PRACTITIONER, page 393, occurs a statement by Dr. Teague, that "a solvent of at least some grades of amalgam does pervade the oral cavity."

I should like to have him examine the specimens that I enclose herewith, and see if he does not find all the conditions of which he speaks upon the underside of both fillings. I mean that portion next the tooth.

Certainly no solvent has been at work here, but plainly some one or more of the component parts of the mass failed to get its proportion of the solvent—that is, the mercury—and never became a solid.

I think we have all seen the converse of this also, where so much mercury was used that it became a solvent for portions of the filling that were already set. These re-dissolved portions, not becoming hard again, were easily rubbed out and washed out by food and saliva.

If Dr. Teague desires to experiment in this direction, let him take some amalgam that has just begun to set, and mix it up with some more mercury and note its condition afterward, and let us know if the conditions described by him are not explicable on other grounds than those he has in mind in his criticism.

The component parts of most amalgams unite with the mercury with varying degrees of intensity, and in some of the coarser grades I think it quite possible that the silver should take its quantum of mercury and become set before the tin, gold, platinum, copper, or other metals comprising the alloy, have even become softened. The usual mode of mixing in a mortar would cause unequal combination. Fletcher's mode of shaking the alloy with the mercury in a tube is far more accurate.

E. A. BOGUE.

29 E. 20th Street, New York.

ANSWER.

The specimens from Dr. Bogue are received. I have examined them as well as I can with apparatus at hand. My opinion is that in each case, when the amalgam was inserted, the cavity was not perfectly freed of chippings, as "the powder" mentioned I find to

be particles of tooth-substance, gold foil and amalgam. It may be that barely enough mercury was given to the fillings, and in pressing the mass upon the debris in the cavity an irregular or rough surface underneath was made. It was therefore an easy thing for particles of the filling to become detached and mingle with "the powder" already there, especially if the filling became loose and "wabbled" in the cavity.

The cases I had in mind when I penned the piece for the INDEPENDENT PRACTITIONER, were a decided disintegration of the wearing (outside) surface. I took it to be from chemical action. Dr. Bogue's theory may be correct, yet the fillings seemed quite compact and strong.

B. H. TEAGUE.

AIKEN, SOUTH CAROLINA.

WILLIAMS ENGINE GOLD CONDENSER.

The cuts of this instrument were not finished in time for insertion in the article of Dr. Bodecker. As we wish to make the exposition of the system complete in every way, we insert the illustration here. Fig. 1 represents the instrument in its natural size. Fig. 2 shows it enlarged four times, to represent the details of its construction. The advantages claimed for it are, that it carries the gold forward and at the same time spins it out laterally; that with it the gold can be picked up as with a pair of pliers; that it answers a good purpose as a hand-plugger, and that it leaves the surface of the filling in the proper condition for the reception and easy condensation of the next cylinder or pellet.

Fig. 1



Fig. 2



MRS. LUCRETIA L. BRACKETT.

Those who knew the peculiarly tender affection that existed between Dr. C. A. Brackett and his mother, and the devotion of each to the other, will sincerely sympathize with him in her death, which occurred at Newport, R. I., on the 11th ult. Hers was indeed one of those gentle and pure natures which are only known and fully appreciated by those who live in the closest relationship.

GUTTA-PERCHA CAPPINGS.

Having seen nothing in the journals advising against the employment of gutta-percha as a capping for exposed pulps, while much has appeared urging its use both as a capping and as a non-conductor under metal fillings, I feel it a bounden duty to utter a note of warning. It is a well-known fact that gutta-percha possesses sufficient expansive qualities to make it a valuable agent in separating teeth. We have all observed this property, in a marked degree, when buccal cavities have been filled with it. No matter how carefully the work has been done, or how neatly and smoothly the material has been packed, a few months later we are sure to find it bulging from the cavity to such an extent as to make us feel as if we had used at least one-fourth too much material. This same change takes place when it is used over an exposed pulp, and confined under a filling. Sufficient pressure is exerted to produce inflammation and death of that organ.

When used as a non-conductor under large metallic fillings it will, in almost every case, expand to such a degree as to force the filling out, even if it has to fracture the walls of the tooth to do it. We can most heartily recommend it as a root-filling, but in such cases the roots should be filled with gutta-percha, and the pulp-chamber with gold, or some of the cements. THOMAS T. MOORE.

INGENIOUS.

There are among dentists some minds of great originality. We know of one who packed his vulcanizer top with vulcanizable rubber. It stopped its leaking, but when the case came out it was taken out through a hole made in the bottom with a cold-chisel.

Another regularly oiled the thread of the top until, in his efforts to unscrew the greasy top, he had worn out the slots for the wrench. Finally, a more than usually liberal supply of oil afforded enough gum, when associated with the inability to make the wrench hold, to force him, too, to take a case out through the bottom.

AMERICAN DENTAL ASSOCIATION.

The twenty-fifth annual session of the American Dental Association will be held at Minneapolis, Minnesota, commencing at 11 A. M., Tuesday, Aug. 4th, 1885. GEO. H. CUSHING,

Rec. Secretary.

MIKE AND THE DOCTOR.

A dentist of Detroit, an officer of the American Dental Association, visiting in St. Louis not long since, was robbed of all his portable property—a pocket-book containing a few car tickets, and a newspaper clipping of a piece of poetry, entitled "Jim, our Jim" (Blaine). A few days since he received his pocket-book by express, with the following letter, which speaks for itself:

I always thort a dentist hadd a plentey of munney, but you are the porest kuss I ever saw. Just to think I run risk of gettin' collered and going to the pen and onely got this bloke of a car ticket boodel. are you travelling on your Cheke beatin ralerodes and hotels and hain't got no rocks or are you on a mishionary or a brace game lay i onely knowd by aksident what your name is and where you live and what is your perfeshion and i am to dam proud to keep this babey i haint got no use for a jim blane man i mite of knowed he was a fluke a chump and i piped you of 2 days tried to fake your super but you was to fly never seen a pore denttist befor. i play pool you are a dam fraud i woulddint let you pull a toothe out of a rake. if them tickits was good for a drink i woulddint send them to you and i dont give my right name. you would blo the gaff. all the cops knowes me and I have done time.

MIKE.

SENSITIVE DENTINE.

What I wish to show is that dryness is the best obtundent of pain in sensitive dentine, and that the efficiency of most of the agents now employed for this purpose is due to their power to bring about this result, and that the after-troubles experienced from thermal changes are due to the metallic filling having been packed into a damp bed, and that soft neural matter is in actual contact with, or in close proximity to, the metal plug without any protection; or if any application was made the parietal surface of the cavity was preoccupied with moisture, and not in a condition to take it up, instead of having a dry, hard surface of devitalized bone, saturated with some non-conducting material insoluble in water, capable of resisting any reasonable percussion from the mallet, and which shall form a natural cap over the pulp.—*Dr. R. F. H. King—Journal of the British Dental Association.*

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The next regular meeting of the National Association of Dental Examiners will be held at Minneapolis, on Tuesday, August 4, 1885. A full representation is very much desired.

GEO. H. CUSHING,
Secretary.

EXTIRPATION OF THE LARYNX.

A very interesting and successful surgical operation was performed at the Buffalo General Hospital, June 28th, by Dr. Roswell Park, Professor of Surgery in the University of Buffalo, Medical Department, in the presence of members of the Faculty and the Hospital staff. The patient was a physician, 64 years of age, who was suffering from a malignant growth in the larynx. He had been under the care of several famous specialists in different cities. Not long before the death of Dr. Louis Elsberg, he removed a large amount of the growth by intra-laryngeal method. Dr. Park removed the cricoid and thyroid glands, with about two inches of the trachea. The hyoid bone and the uvula were taken out, and the œsophagus opened at the wound, that the man may be artificially fed, for, of course, with the removal of the hyoid bone all command of the muscles of the mouth and pharynx is lost. The delicacy of the operation, which lasted just an hour, may be understood when the character of the operation is comprehended. Dr. Park intends to insert an artificial larynx, containing reeds to serve in place of the removed vocal cords, and which he thinks will restore speech sufficiently to enable the patient to make himself understood. This is the third time that the operation has been performed in this country. At the time of writing this paragraph, nearly a month after the operation, the patient is doing well.

A DENTURE IN THE STOMACH.

The *Deutsche Med. Zeit.* gives an account of a novel method for the removal of an artificial dental plate that had been accidentally swallowed. It proves that a little ingenuity is sometimes worth more than all the knowledge of the schools.

Dr. Geisselbrecht, a dentist of Furst, was sent for one night to attend a servant girl who had swallowed her artificial teeth, a plate which the *Zeitung*, with characteristic professional intelligence, says had upon it "four canines and two bicuspids." The denture could not be seen, but was felt in the larynx, and pushed through the cardiac orifice. Dr. G. reflecting that the gold clasps of the rubber plate and the many sharp points would prevent or retard its passage through the digestive canal, as well as probably injure

the intestines, set his wits to work to smooth its journey. He cut spool cotton into small pieces, and incorporated them with the white of eggs, beaten up to a froth, and made the girl swallow a quantity of it. The result was eminently successful, the plate being passed in due time without pain or material inconvenience, and upon examination it was found completely invested with the thread, and with its sharp points well protected by their entanglement.

MAGITOT: CONCERNING THE SYPHILITIC ORIGIN OF RACHITIS.

The author's paper is an additional criticism in opposition to the theory of Parrot, that rachitis is merely an expression of congenital syphilis. The criticism is aimed at the "*syphilis dentaire*" of Parrot, *i. e.*, the deformed teeth, from the presence of furrows and crescentic notchings, which are considered by him (Parrot) as an indication of syphilis. Three questions are propounded by Magitot. The first is, is the erosion of the teeth a characteristic and unfailing sign of hereditary syphilis (as Parrot considers it)? The answer is, no, for (*a*) it is not a constant symptom; (*b*) those who possess it are known to have acquired chancre; (*c*) it occurs in cases in which no traces of syphilitic history is discoverable; (*d*) it sometimes occurs in dogs, cattle and other animals which are absolutely insusceptible to syphilis. The second question is, does hereditary syphilis have, as a necessary consequent, notable trophic disturbances of the dental apparatus? The answer is, yes, without doubt, but the phenomena which are presented are, usually, small, misshapen, conical teeth, defective anatomically and chemically, and late in their appearance. The third question is, what are the causes of the erosions in question, and the mechanism of their appearance? The answer is, a dystrophy of the two dental tissues, the enamel and the ivory, but not an atrophy, as Parrot asserts. The primary cause is to be found in certain disturbances of the nervous system and the general nutrition, and especially in conditions of a convulsive character, *e. g.*, infantile eclampsia. From such a cause may arise a sudden stoppage in the development of the dental tissue, which, after a time, resumes its natural course, but with the result that the furrows or notchings remain as evidences of the recent condition.—*Archives of Pediatrics.*

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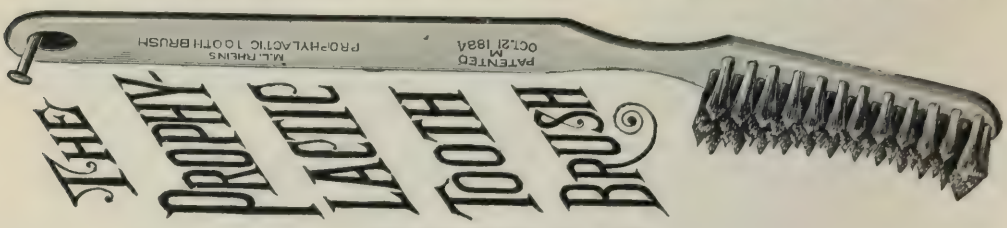
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Original Communications.

THE EARTHY PHOSPHATES.

ABSTRACT OF A PAPER READ BEFORE THE AMERICAN DENTAL ASSOCIATION AT MINNEAPOLIS, AUGUST, 1885.

BY DR. W. C. BARRETT.

The administration of the earthy phosphates to pregnant women and to young children has been a favorite prophylactic method of treatment with many intelligent dentists. The theory upon which this system was founded is, that decayed or defective teeth owe their condition to trophic disturbances, and that it is but necessary to supply the elements missing to produce perfect dentures. This theory is a very plausible one, and it gives loquacious practitioners excellent opportunity to enlarge upon the wonderful process of gestation, and the marvelously interesting double function of the expectant mother, whose digestive apparatus must furnish, not only pabulum to sustain her own physical being during a trying period, but sustenance to the fœtal man or woman which she carried beneath her heart. If her own teeth decayed during this period, because of the neglect which at such times is common, she was perhaps treated to long dissertations upon the imperative demands of the growing contents of her uterus, which, not finding the earthy elements needed in the blood with which she supplied it, was robbing her own osseous system to supply its wants. If her teeth were found to be soft, it was because their character had changed, and the lime salts of their crystalline structure had been taken out to build up the young child. Corroborative evidence, when looked for with biased judgment, was not lacking, and dentists had many

tales to relate of the most stupendous changes effected in the dental development of children through a judicious administration of the lacto-phosphate of lime to the mother during pregnancy. The instances in which such results seemed apparent were cited, while those in which no effect resulted were not included in the category, or were attributed to a want of faithfulness in taking the prescription.

We believe that which we desire to believe, and there is no difficulty in finding apparent confirmatory evidence to sustain the most absurd of postulates, when one sets out with a determination to do so.

There is probably no one who has followed the prescribing of the earthy phosphates for a supposed dystrophic condition, who will not, if his memory be sufficient and his data perfect, call to recollection very many complete failures. If he shall have traced the after-history of children born of mothers who, during pregnancy, were subjected to the phosphatic treatment, he will probably find quite as many with defective teeth as in those who were born under other conditions.

Earlier in my own professional history, I experimented with the different preparations in numerous cases. One of the first of these was that of a lady pregnant with her second child, the first being in a deplorable dental state. The seeming results were surprising. Not only was her own gestation much more pleasant and easy, but the dentition of her infant was almost entirely without the usual febrile disturbances, and the child's teeth, up to the time when I lost sight of him through the removal of the parents, presented a remarkable contrast to those of his elder brother. This case would have possibly confirmed me in the use of the phosphates, were it not that about the same time I had contrary experiences.

In one notable case, that of a lady pregnant with her fifth child, I persuaded her to a thorough course of my then favorite remedy. All the other children had excellent teeth, much above the average. There was no special reason why she should be subjected to prophylactic treatment, except that I thought I saw disastrous effects from her condition upon her own teeth, and because I was pushing the investigation with strong hopes that I had hit upon means by which a perfect dentition might be assured to every child. As time rolled on I beheld the direct antithesis of the first cited case. The

child had all manner of difficulty in getting its teeth, and when they were in place I saw, to my confusion, the only really bad dentition in the family. Of all the women whom I subjected to this treatment, there was not one in which the experience of the lady of the first instance was repeated. Experience alone led me to entirely abandon the practice, and when, subsequently, I made a more thorough study of the physiology of nutrition, I became confirmed in my skepticism concerning the utility of the feeding of phosphates to pregnant women, or even the indiscriminate recommending of such foods as are particularly rich in earthy materials. The facts are against it.

A few years since it was common to hear denunciations of the use of fine flour, from which it was declared that the miller had eliminated all that was of use in the building up of the bony system. Elaborate papers have been read before this Association, in which it was demonstrated to the satisfaction of the really thoughtful and honest essayist, that the decay of teeth, which was supposed to be a modern disease, was due to the lack of phosphates in the fine flour that formed the chief article of subsistence. Since then, computations have been made of the amount of bone-making material that is found in the finest of wheat flour, and of the amount that is needed by both mother and fœtus during the period of gestation, and it has been demonstrated that should she subsist entirely upon this article of diet, there would still be an excess of the lime salts. It is a fact that during pregnancy there is almost universally a continual elimination of these principles, which are easily traced in the excretions. Any man, or pregnant woman, who lives upon almost any diet that is sufficient to sustain life, will, if the nutritive organs be in proper condition, find more than is necessary of these elements to keep the osseous system in good condition. It must be remembered that the nutritive changes in the bones and teeth are less than in the other tissues of the body, because they are more permanent in character and structure. Especially is this the case with the teeth, in which the trophic changes are very limited indeed. That such a dystrophy may exist as shall materially affect these organs, no one will probably deny; but the process will of necessity be but a slow one, and the changes will not soon be manifest.

And now let me detail some of the physiological reasons why the giving of the earthy phosphates for nutritive purposes must be a

mistaken treatment, and why, to my conception, it is founded upon erroneous assimilative views.

All pabulum must originally be derived from the earth. That is the primal source of all nutritive material. But there is no order or class in the animal kingdom that can elaborate it. There is no animal organism that can derive nourishment directly from earthy matter. That function rests solely in the vegetable kingdom. Animals are not primal organizers. They cannot digest the inorganic. They require organic structures for their food. But the study of vegetable physiology shows that they have the ability to assimilate inorganic matter, and out of earthy matter to organize tissue that may serve for the food of the higher orders. When matter has once been organized into vegetable products, it may serve for the sustenance of animals. Some of the animal kingdom subsist solely upon matter but once removed from the inorganic. To this class belong the graminivora. Others of the animal kingdom require that their food shall have been twice organized; first from the earth into a vegetable form, and again by an animal into a higher form. To this class belong the carnivora, who cannot digest or assimilate vegetable organisms until they shall have been reorganized into an animal.* Others are omnivorous, and their digestive apparatus will prepare for nutrition matter that has been but once organized into vegetable life, or that has been again organized into animal existence. To this class belongs man. But neither he nor the graminivora can make nutritive use of inorganic matter, any more than can the carnivora. It follows, then, that if inorganic matter be introduced into an animal organism, it is entirely foreign, and must be eliminated in an unchanged condition. If it remain within the system, it is essentially and must remain a foreign substance, an irritant that, if not promptly ejected, will create internal disturbances of a more or less serious nature. All inorganic matter, then, is foreign to the animal system, and so far as nutrition goes it is not only entirely useless, but absolutely mischievous.

Some of the proximate principles of animal bodies are made up mainly of inorganic material, but they never exist as simple substances, unless we may call the iron of the blood a principle. That

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* It is a rather singular fact that most of the animals that require their food twice organized are unfit for food themselves. Their flesh is rank, unpalatable and innutritious. There are exceptions among fishes and birds, but of the mammalia, the flesh-eaters are themselves uneatable.

exists only in a kind of solution, held there by the other constituents, and it is not assimilated directly. The calcium of the bones and teeth exists in combination with other substances, and it is never assimilated directly, but it is elaborated, and the combination formed within the system. Carbonate of lime and the phosphate of magnesia are not taken up as such, but the carbon, the phosphorus, the calcium, and the oxygen are elaborated within the organism, and their chemical union is there completed when they are built into the tissues. The building of this animal house of ours cannot be brought about by feeding bricks and mortar. The raw materials must be furnished in other compounds, which it is the province of the nutritive apparatus to disorganize, to separate into their constituent elements, and to recombine into tissues. Every particle of tissue principle must be elaborated within the body, and built up, not from compounds, but from simple elements. If carbonate of lime be needed for the teeth, it is of no use to feed oyster-shells. The system will not take carbonate of lime, but it will elaborate the materal from the calcium and carbon and oxygen, which it derives from food, and it will take its carbonate of lime in no other way. It is the same with the phosphates, and hence the inutility of giving any preparation of that material, which will not serve as pabulum. So complete and perfect is this nutritive process in the healthy organism, and so universally and admirably are the elements provided in all organic matter, that a perfect digestion will find in any material that is fit for food, sufficient of the different ingredients to elaborate into pabulum for all the tissues.

Were not this the case, it would be impossible for the different races to exist under all the varying conditions in which they must live. The dweller in the hyperborean regions, where vegetable life scarcely exists, must make a subsistence almost exclusively out of an animal diet. But his whole system is as well nourished as is the omnivorous dweller in the temperate regions. There are those who live upon an exclusively vegetable diet, and none of the tissues are starved. Existence has been prolonged exclusively upon fruits, yet every organ was perfect, because of this universal diffusion of the essential elements of nutrition. The simple substances from which the compound tissues of the body are composed are comparatively few, and are found everywhere. Were it otherwise; were it the case that the organism was unable to elaborate its compounds from the

elementary substances; were it the fact that carbonate of lime, and fluoride of calcium, and all the other compounds must be supplied as they exist, it can readily be seen that animals could not subsist upon a simple diet. It would be necessary to supply such foods as contain the exact compounds needed, and this, except under the most favorable conditions, would be impossible. Hence, but a very small proportion of the earth's surface would be habitable, and most orders of animals would soon become extinct through inability to obtain the exact compounds needed for so complex a nutrition. The laws governing our existence are simple, if we would but consider them intelligently. Animal life can subsist upon almost any kind of organic matter, not absolutely poisonous, and yet be well nourished.

Inorganic matter does, however, play an important part in the human economy, but man is the only animal that makes any extended use of it. Many inorganic materials act as special irritants or excitants to definite organs. Their very presence in the system may induce certain structural or functional changes, and thus in abnormal conditions they may play a useful part. When they are administered for any such purpose we call them remedies, but man is the only animal that makes such use of the inorganic world. Our medical pharmacopœia is largely made up of inorganic matters, and they are given to induce certain changes corrective of others, brought about by dystrophic conditions. If intestinal function ceases through the presence of innutritive or indigestible matter, an inorganic remedy may, by its presence, induce such violent peristaltic action as to eliminate the obstructive matter. Alterative effects follow the ingestion of some inorganic compounds, but it should always be remembered that such inorganic substances are entirely foreign to the organism, and are always extruded at the earliest opportunity. They form no part of the nutrition, and are never built up into the tissues.

It must follow, then, that the giving of the inorganic earthy phosphates for nutritive purposes is always a mistake. If they act at all, it must be remedially, and if they are used they should be intelligently prescribed, like any other agent, and only for their medicinal properties. I have no knowledge that they have any very decided medicinal virtues, and therefore I can see no excuse for dispensing such inert compounds.

DAS ZAHNÆRZTLICHE INSTITUT DER KŒNIG-LICHEN UNIVERSITÆT ZU BERLIN.

BY PROFESSOR W. D. MILLER.

I have been repeatedly asked by persons studying dentistry in America, and purposing to take the degree of D. D. S. there, what the requisites are for admission to the State Dental Examination in Berlin, and in what branches the candidates for the title "Approbirter Zahnarzt" are examined. In order to furnish information on this point to all inquirers at once, as well as to explain briefly the manner in which the Institute is conducted, this article is written.

The Berlin Dental Institute is a part of the University, and all students of dentistry at the Institute must be matriculated there. As ladies may not matriculate at the University, they cannot be admitted to the study of dentistry at the Institute. Foreigners are matriculated on presenting a passport alone, without any special reference to their previous education. Persons of German nationality, however, are required to furnish evidence of having passed the examinations for the Prima of a German Gymnasium, or first class Realschule, which is equivalent to a preparation for the Freshman year at the best American Colleges and Universities, and if required at our American Dental Schools would exclude a very large proportion of the applicants for admission. Foreigners wishing to attempt the State Dental Examination are required to present a petition to the Kultus-Minister, who determines the conditions for admission to an examination in such cases. Candidates of German nationality must furnish, in addition to the requisites for admission given above, evidence of having had four semesters of University study, and practical exercise in operative and mechanical dentistry. Four semesters (18 months) are equivalent to four years in the majority of American Dental Schools.

It will be seen that very few of that class of Germans who flock to America to pursue their studies in dentistry can expect to be admitted to examinations here; first, because they do not possess the necessary general education, and second, because they have not taken the prescribed four semesters. The possession of a D. D. S. will not be of any assistance whatever, since this title does not

have any more value here than any other two letters of the alphabet put together in any order whatever. On the contrary, a German possessing the degree of D. D. S., who is not an "Approbirter Zahnarzt," is in danger of being looked upon as one who, not having the ability or energy to make his examination here, has escaped to America, where it is believed that every one may go through with the greatest ease, and in the shortest possible time.

The term Dentist, or Dentiste, applied to the possessor of a D. D. S., is little less than a term of reproach, and such a dentist who calls himself "Zahnarzt" is liable to prosecution. A few days since, four persons, possessing diplomas from American dental colleges, were prosecuted and fined for putting the term "Amerik Zahnarzt" on their signs. The Deans of the dental colleges do well in taking steps to remedy the evils for which they themselves are measurably responsible, but they must take many and long strides before they succeed in removing from American Dentistry the stigma which some of them have helped to bring upon it. There are schools in America which still command respect here, as well as at home; they are too well known to need particular mention.

The Dental Institute, which was opened only last October, and which was a new experiment in Germany, has thus far proved a success. The rooms temporarily occupied have become over-filled, and new ones are already in requisition. For the summer semester over eighty students of dentistry matriculated at the University. A new building, devoted exclusively to dental purposes, is promised, but we shall probably be obliged to wait a few years before we see its completion. Lectures on anatomy, physiology, surgery, materia medica, etc., are heard at the University, while the work at the Institute is carried on in three separate departments. The first, conducted by Prof. Busch, comprises oral surgery, including extraction; the second, conducted by Professors Miller and Pætsch, comprises the conservative treatment of the diseases of the teeth and their nearer complications; the third, mechanical dentistry, is conducted by Prof. Sauer.

In all these departments the work is done under the eye of the professor and assistant, both spending at least two hours daily in the clinic rooms. In this respect the students of dentistry here are more favored than in America, where the acting professor may not be seen in the operating room more than two or three times during

the whole year. The instruction given in the operating rooms is essentially the same as that in American schools, except that in some respects it is more general, in that it endeavors to give practice in all the methods of using gold, both cohesive and non-cohesive—even Herbst's method not being left out in the cold altogether—while no method or preparation of gold is recommended to the exclusion of all others. Tin and gold combined, as well as the plastics, amalgam, etc., all very useful in their places, are brought into requisition.

There is a marked difference between the entering class in the Berlin school and that in an American school. The former have a better general education, and are better prepared to enter upon the study of any subject of a scientific nature, while the latter are much farther advanced in practical dentistry, and many of them, who are sons of dentists, or have worked for months or years in dental offices, are able to make very good gold operations on entering. Here, however, to be the son of a Zahnarzt, or to have been in practice for a number of years, does not by any means necessarily signify the ability to insert a gold filling, to properly prepare a cavity, or to adjust the cofferdam. "Approbirter Zahnarzts" come to us to learn those things which many American students know and do on entering college; nevertheless, Zahnarzt is a title of which every possessor is proud, because it represents a certain number of years devoted to general education, and a number of semesters devoted to the special study of dentistry, while D. D. S. is altogether an uncertain quantity, and may represent either capacity or incapacity, learning or ignorance, as the case may be.

In conclusion, no one who cannot fulfill the requirements stated in the beginning of this article need make application for admission to examination, as the laws are very stringent, and exceptions are virtually never made, and, as a warning to those who disappear from amongst us for a short time, and, returning a few weeks later, bring back with them laurel wreaths from certain American colleges that, in Germany, have gained more of notoriety than reputation, we will say that both they and the institutions that crowned them are in continual danger of being exposed. Unfortunately, as is too often the case, the innocent must suffer with the guilty, and even those properly graduated from schools in good standing are not always exempt.

EFFECTS OF ZYMOTIC DISEASES UPON THE TEETH.

BY DR. F. S. WHITSLAR, YOUNGSTOWN, OHIO.

READ AT THE MEETING OF THE NORTHERN OHIO DENTAL SOCIETY, HELD IN YOUNGSTOWN, O., MAY 13, 1885.

In the consideration of this subject we are brought to the investigation, not only of the causes of decay of the teeth, but of the arrest of the developmental process. Causes of decay are two-fold, and may be classed as predisposing and exciting. You will bear in mind that these two divisions are clear and distinct. There are many things which predispose teeth to decay, but we know more of the exciting than of the predisposing causes. When the structure is imperfect, they are more likely to decay than where they are perfect. Then again, the teeth may be comparatively well organized, but owing to defective nutrition and enfeeblement of the vital forces, they are more readily susceptible to decay. With regard to exciting causes, there has been much discussion. Grouping the various opinions entertained by those who have experimented and written extensively upon the subject, we have :

1st, Those who regard it as a real disease, a vital phenomenon strictly comparable to morbid conditions of other more highly organized parts of the body.

2d, Those who regard it in the main as the effect of mere chemical action, but who also consider that some very constant appearances are only explicable on the hypothesis of vital action.

3d, Those who consider it entirely the effect of chemical action, in no degree modified by connection with a living organism. Fox, Bell, Hunter, Cuvier, Hertz, and Neuman maintained that dental caries was an inflammatory affection, a true disease of the dentine, and the name of "Odontitis" was given to this supposed disease. This theory has so much evidence against it, and so little in its favor, that it need not detain us longer.

As preliminary to what I shall say, I wish to call attention to the constituent elements of the teeth, and the bonds which hold them together. Of the sixteen elements composing the human body, about twelve are found in the structure of the teeth, and they may be classed into organic and inorganic matter. The bonds which hold together or maintain the structural integrity

of the teeth are first, the vital, second the chemical, and third, the mechanical, the latter depending upon the first two. Remove the vital principle from a tooth, and the chemical force soon begins to be impaired, and disintegration from the first is comparatively an easy process. The vital force, when present, holds the peculiar chemical affinities that exist here in its grasp, and the latter are only at their best when thus governed.

What are zymotic diseases? Dunglison informs us that a zymotic disease is any epidemic, endemic, contagious, or sporadic affection, which is produced by some morbific principle acting on the organism similar to a ferment, as the major exanthemata. In the classification of Dr. Wm. Farr, zymotic diseases comprise diseases which are epidemic, communicable, inoculable, capable of propagation from existing force, or by the want or bad quality of food. This class includes four orders : Miasmatic, enthetic, dietic, and parasitic.

The first thing to which we ask your attention as a probable effect of zymotic diseases upon the teeth is the partial arrest of their development. The crowns of teeth bearing the marks of interrupted development, instead of presenting the smooth and glassy surface characteristic of finely developed enamel, are disfigured by the presence of an irregularly grooved and pitted surface, usually accompanied by a considerable diminution in size. The incisors are commonly very thin and compressed, while the cuspids and cusps of the molars are terminated by sharp points. The enamel and dentine tissues are not only deficient in quantity, but are defective in quality. The enamel will be porous, yellow, opaque, and fragile, while in dentine, that uniformity of size and arrangement of the dentinal tubes which they exhibit in well developed teeth is wanting. The defect of structure will be found limited to such portions of the several teeth as were undergoing development at the same time, and consequently under the same constitutional conditions. We sometimes find teeth which are marked by grooves and ridges regularly disposed. The grooves are the result of imperfect, and the ridges of perfect, development of the enamel and subjacent dentine. These transverse markings, resulting from alternations in the developmental process, find almost an exact parallel in the striæ produced by similar causes on the nails. This parallel points to the theory that the teeth are appendages of the skin, and belong to dermal or tegumentary tissues. You are doubtless familiar with the statement of

Tomes, that "The mucus membrane which lines the alimentary canal is continuous with, is indeed a part of, the external skin with which it blends at the lips, and that all teeth are alike developed from a part of the mucus membrane, and any connection which they may ultimately get with the bone is a secondary matter."

Salter says: "Teeth certainly are not extraneous organs, as suggested by Hunter, but have a distinct vitality. They undergo nutritional changes by virtue of a plasmic circulation in their tubular structure, and two of their hard tissues manifest sensibility, which in disease may be exalted to extreme painfulness. The teeth are not parts of the true skeleton, but may be considered as elements of a dermal skeleton. They are developed from the tegument of the mouth, and though closely embraced by the alveolar processes of the maxillary bones, are never in man united to them." While we cannot in every case trace this ridged, pitted, or honeycombed condition of the teeth to the presence of serious illness of the patient during the time when the defective portions of the teeth were being developed, it can scarcely be doubted that an imperfect organization of the teeth, if not the result of some special disease, such as measles, influencing the system generally, is yet consequent upon constitutional conditions. The simple fact that if one tooth is affected those parts of other teeth which correspond in respect to the period of formation will present a similar condition, precludes the supposition that the effect is due merely to a local cause. Hereditary syphilis in its effects may often be traced as the cause of a peculiarly dwarfed condition of certain teeth. The incisors and cuspids are of small size, and peg-shaped; the crowns are notched, the notch being in the main a concavity from the one corner to the other, though there may be secondary notches in this general concavity. Teeth of the class which we note as syphilitic have a dusky, opaque appearance, and are relatively small. They are of a very soft character, and consequently wear down very rapidly. Moreover, it is claimed by the best authorities that constitutional syphilis is capable of modifying the nutrition of many parts of the body, manifesting its influence in attacks on the hair, the nails, and the skin generally. Now the homological relation which exists between the teeth and various dermal appendages may serve, if not to explain, at least to render less surprising, the fact that the developing teeth should be a chosen site for its manifestation.

So much for the arrest of development. Now what are the effects of zymotic diseases upon teeth which bear none of the marks of partial development? We answer, that all febrile conditions or diseases predispose teeth to decay, first, by diminishing vitality, second, by changing the secretions of the mouth so that they act injuriously upon the teeth. In dyspepsia we have not only the predisposing but also the exciting causes of decay, as it not only impairs vitality, but prepares in the stomach an acid that is continually being thrown upon the teeth, which acts upon them with great energy. I need scarcely say that residence for any great length of time in miasmatic regions, inducing unfavorable conditions, institutes a predisposing cause, and in brief, all epidemic, endemic, dietic, and enthetic diseases derange the functions of the body, vitiate the secretions, impair the vitality, and may be classed as predisposing causes of decay.

REPRODUCTION OF TISSUE BY SPONGE GRAFTING.

BY W. H. ATKINSON, M. D., D. D. S.

READ BEFORE THE DENTAL SOCIETY OF THE STATE OF NEW YORK, AT ITS SEVENTEENTH ANNUAL MEETING AT ALBANY, MAY, 1885.

In the whole history of surgery there is no method of so much value and so little understood and practiced as that which has been called sponge grafting. Like most of the knowledge of principles and modes of practice in our specialty, it grew out of the misfortunes of traumatic or functional lesion.

The first use made of sponge grafting, in a crude way, was by obstetricians to fill the gap of cervical fissure of the uterus, resulting from violent and tedious labor.

I remember the discussions as to what became of the sponge. In one case of a very nervous woman, then called "hysterical," it was questioned whether she did not purposely remove the sponge, although she stoutly maintained the contrary. The cases submitted to this treatment did so well that this method was kept secret among a few for years. At that time, a solution of bichloride of mercury in water, alone or with sal ammoniac, was the external remedy used for scabies (itch).

Dr. William Woodruff, of Meadville, Pa., at the suggestion of a

pupil then studying with him, wrung out a sponge in this solution, and used it in a badly torn cervix uteri following labor, which healed so kindly as to induce him to adopt it in the general treatment of these lesions.

The tediousness of the drainage method of healing large loss of tissue by fibrous tents, rubber tubes, or horse hair or other setons, to induce granulation, is greatly abridged by the use of the sponge graft in place of the tent, as the latter must be removed before the wound can be completely closed by the new growth. Efforts to assist nature in healing wounds and in reproduction of lost tissues from traumatic lesion or from functional lesion had been so various, bungling and inhuman, that it is no wonder that a mere expectant course long held dominion in the annals of surgery. From the abhorrent use in surgery of the actual cautery in the shape of boiling oil, into which the bleeding stump was plunged, red-hot irons and embers applied to bleeding wounds, and the potential cautery in the shape of the strongest alkalies and acids to arrest hemorrhage, the wait-and-watch treatment was established. The lack of any just apprehension of the process of inflammation permitted the introduction of "irrigation" and "drainage" of wounds and abscesses as helps to "granulation," as healing of suppurating tissue was then called.

Healing with first intention has always been regarded with high favor. Every method and management conducive to this form of healing must be of the highest importance. Transplanting bits of skin and epithelial tissue led to such kindly results as to suggest the introduction of some vehicle into which the blood plasm might be received and held in place, to form a clot in the gap of the wound, to be metamorphosed into the scar tissue, taking the place of the lost substance. Many forms of animal sutures and of flesh tents were resorted to, especially fibrous tissue, in the shape of tendons.

At length sterilized tents were introduced, which were gradually extruded as the new formations progressed in the depths of the wound, and had to be cut off from time to time, until at last a mere shred remained in the pit left at the site of the former wound tract. Sterilization is now known as "Listerism," and is a great step in advance of the old filthy method of uncleanly carelessness.

The accounts of chicken's flesh and other forms of non-human

animal flesh being used to fill gapes of lost tissue, may be dismissed with the verdict of "not proven."

The accounts of the use of sterilized sponge on the other side of the Atlantic led me to try the method in my own practice. The results have been so favorable as to induce me to write this paper, with the hope of having my brethren become partakers of the benefits of this simple and beneficent treatment. Take a case where a portion of the flesh has been quite removed by the bite of a dog, the cut of a knife, buzz-saw, or other free cutting instrument. It is only necessary to stanch the bleeding, and fit a bit of sterilized sponge of the size and shape of the lost flesh, and to cover it with some impervious dressing of oiled silk, sheet rubber, court plaster, gold beater's skin, husband's plaster, or such like material, over which a light support without pressure should be secured, to keep the exudate of blood pressure from escaping too freely.

When this is done in a healthy subject, we may look for union by first intention, without one drop of pus or deteriorated product of the albuminoid clot which fills the cavity, and out of which the new growth of tissue comes. Destruction of all disease germs which adhere to the dressings constitutes the sterilization, or "Listerism," which proves so conducive to healing by first intention.

A large list of germicides is at our command, which are competent to effect sterilization. The chief one, and leading the list, is a solution of bichloride of mercury, of from one in five hundred to one in a thousand parts of water.

Sponge grafts conserve the time and energy of the healing process. The former manner of determining the point at which to cease dressing was to place the finger upon the new growth, and if the plasm broke short without adhering to the finger and forming a more or less tenacious rope, which broke as the finger was carried away farther and farther, it was deemed necessary to continue stimulating dressings; but if the rugæ of the finger left their imprint upon the jelly-like mass, closing the wound, it was deemed better to protect it from outward disturbance by a simple non-irritative dressing. If the plasm were so watery as not to rope at all, dressing with coagulant was advisable.

With the old training to guide us, and the present better understanding of the character and styles of the inflammatory process, we are more able to discriminate the indications of favorable progress and unfavorable progress of the healing process.

A CRITICAL REVIEW OF DR. W. B. AMES' ARTICLE ON ATMOSPHERIC PRESSURE, ETC., AS PUBLISHED IN THE JULY NUMBER OF THE "INDEPENDENT PRACTITIONER."

BY DR. C. H. LAND, DETROIT, MICH.

The entire force of the argument of Dr. Ames is concentrated on what he asserts is a powerful pressure of the atmosphere. This it seems to me is an absurdity. For how can there be any manifestation of atmospheric pressure without an air space and some exhausting means. These ideas seem to pervade almost the entire dental profession, and, as a consequence, if one goes into any dental laboratory, not excepting those of the colleges, he will find the ubiquitous air chamber staring at him as an emblem of stupidity. It may be seen on signs, on cards, bill heads, letter heads, and in the newspapers. The beautiful little heart, shield, or star, is the vehicle of last resort for the suction-plate dentist, who, for the want of a better training in the proper method of inserting a relief, places a leaden heart in the most rigid portion of the palatine surface, for no other reason than because he saw his preceptor do it. In order to enable Dr. Ames and others to test the extent of this pressure, let me suggest the following:

1st. Take a glass chimney, such as is used for the ordinary student's lamp, get a two-pound weight, cover it with rubber dam, press the large end of the chimney on the weight, and with the mouth exhaust the air, and it will be demonstrated that the power exerted by the tongue as an exhausting means, under the most favorable conditions, will not represent a retaining force greater than about one pound to the square inch.

2d. Take a piece of leather one and one-half inches in diameter, fasten a string in the centre, soak it in water, then press it close to a six-pound weight, and a retaining force of two pounds' adhesion to the square inch will be manifested, a contact force one hundred per cent. greater than where the tongue is employed as an exhausting means. In this latter experiment we have a manifestation of capillary attraction, induced by the adhesive attraction that all fluid substances have for solid bodies, to such an extent that the water will act against its own gravity, as illustrated in a sponge. It will force the air out of the intermediate spaces and take its place. In this way an equilibrium is established, by which the atmosphere

meets with a counter-resistance sufficient to completely balance the weight, consequently there is no pressure. The saliva, or fluids of the mouth, cause the denture to adhere with a retaining force of about two pounds to the square inch, forcing the air out from beneath the denture, and the tissues of the mouth fill up all the empty spaces. From these facts it should become evident to the most casual observer, that the term atmospheric denture is a misnomer. However, if we could utilize the pressure of the atmosphere through the agency of an exhausting pump, even with one-pound pressure to the square inch, there could be no better means devised for maintaining a denture. There would be this practical advantage: the air pressing equally on all sides would cause the denture to be held firmly in position from all directions, no matter what the shape of the mouth, while a capillary contact will slip or slide on the angles, and only represent its maximum retaining force on horizontal surfaces. For this reason angular mouths are the most difficult to fit, especially if they are rigid and dry.

The scientific facts that I wish to present to the profession may be enumerated as follows:

1st. That artificial dentures are not maintained by the pressure of the atmosphere, and, if they were, that the tissues of the mouth would not tolerate even one pound pressure to the square inch.

2d. That they are maintained through the agency of an intermediate fluid, which represents a retaining force of about two pounds to the square inch on horizontal surfaces.

3d. That air spaces should be provided, not for the purpose of forming a partial vacuum, but simply as a relief to the dense portions of the maxillary bone and the rigid parts of the palatine arch. This relief, in a mouth where the alveolar ridge is comparatively soft, should cover four-fifths of the interior surface of the mouth, and be just sufficient in depth to make the outer fifth become the most positive in contact. The mouth being of a yielding nature, it soon conforms to this central relief, and, as a result, we secure a balanced denture, having established the first positive contact at the greatest diameter of the mouth. A mouth that is generally rigid, representing a surface so closely allied to a rigid denture, would indicate a balanced contact. Consequently, a good impression is about all that is necessary to secure perfect results. On the contrary, a mouth that presents certain rigid parts in combination with

soft or flexible tissues is an indication of the necessity of relieving the denser portions on all horizontal surfaces, in this way producing a balanced contact. When properly manipulated this should reward the dentist with the utmost possibilities of success in the application of a rigid denture to the dental arch.

THE DENTAL PROFESSION OF ENGLAND.

BY FELIX WEISS, L. D. S., LONDON.

In the issue of the INDEPENDENT PRACTITIONER for July, there is published a communication from Mr. W. H. Waite, of Liverpool, entitled "Some Recent Events Connected with the Dental Profession in England." No one on this side of the Atlantic can have any objection to Mr. Waite's communication, *as far as it goes*, but, unfortunately, the whole truth has not been stated by him. Every dentist here is aware that in July, 1878, an Act was passed through Parliament, and after the 1st of August, 1879, no one could practice unless he possessed a license from one of the medical colleges, or was already on the register. The College of Surgeons of England had its days of grace, and then its doors were closed upon all those who were not prepared to carry out the curriculum. But the other licensing bodies of Great Britain, being equally entitled to confer diplomas, continue to receive candidates to this day, without curriculum, and what is more, when they have passed their light examination they affix to their names the coveted L. D. S., but, in most instances, without the name of the source from whence they derive their qualification.

This requires no confirmation of mine, for everyone knows that the degree given by the Irish college, for instance, subjects its possessor to so little study that its value is simply nominal, and, in proof of this, those members who possess it leave out the last letter, "I," only using the L. D. S. From the earliest period of the existence of the English College, it has been called *The* Royal College of Surgeons. So these letters, without anything added to them, betoken the English title. If the Irish College is proud of the distinction it confers, how is it that the Irish licentiates invariably leave out the "Ireland," or the letter "I"? It is unfair to those who hold the diploma of the English College, and who gained it by

passing the curriculum, to class them with men who had simply to go to Dublin, pay their fees, and receive their certificate, although these gentlemen were in practice before the passing of the Act. So long as the Irish College keeps its doors open, so long will the L. D. S. of Ireland continue to possess little value. Curriculum men have had to work assiduously for this distinction; they have not only worked hard, but they have been put to much expense, and it is an act of gross injustice to try to place others on an equal footing who have neither had to study nor to pass any examination worth speaking about. In other respects, Mr. Waite's communication fairly represents "the dental profession in England."

London, July 16, 1885.

A NEW COMMA BACILLUS.

BY DR. W. D. MILLER.

Considering the great interest which for some months has centered around the so-called comma bacilli, a short description of a new member of this probably very numerous and widely distributed family may not be out of place.

In the month of May, I had occasion to spend a day in Egerstorff, near Hanover, and in the gutter water, as also in the drinking water of this untidy village, I could easily detect, by the use of the microscope, the presence of a comma bacillus. Its pure culture was accomplished on agar-agar without much difficulty; on this medium it grows rapidly at blood or room temperature, and forms on the surface a thin, bluish, semi-liquid layer, one-half to one mm. thick. On ten per cent. peptone-gelatine it grows rapidly at first, but after forty-eight hours its growth seems to cease altogether. On plates, in the second or third dilution, after twenty-four hours' growth, the colonies appear, under one hundred diameters, very irregular, lobular, grayish in color, and traversed by fissures. It differs from all comma bacilli yet discovered, in that it liquefies neither gelatine nor blood-serum. On potato it grows poorly at all temperatures. It is somewhat smaller than the comma bacillus which I isolated from the oral secretions, and possesses in a high degree the peculiarity characteristic of the other comma bacilli, of assuming a great variety of shapes and sizes. In growing colonies on agar-

agar, the cells are tolerably regular, comma or S-shaped; occasionally one finds spirilla, or long, closely twisted leptothrix. In older cultures, on the other hand, the cells become mostly round, or oval, or lemon-shaped, sometimes much increased in size, while the protoplasm is granularly differentiated. In gelatine the cells are mostly short and plump, while on potato almost any form may be found.

The statement of Klein, that comma bacilli occur in the cœcum of healthy guinea-pigs, I have been able to confirm. I did not, however, find them in such numbers as I had expected, after reading his report. Attempts at pure culture did not succeed, so that it would be hazardous in the extreme to make any suppositions as to the identity of these guinea-pig bacilli with any of the known comma bacilli.

BERLIN, June 12, 1885.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FIFTH ANNUAL MEETING, HELD AT MINNEAPOLIS, MINN., AUGUST 4, 5, 6, AND 7, 1885.

REPORTED FOR THE "INDEPENDENT PRACTITIONER," BY "MRS. M. W. J."

The twenty-fifth annual meeting of the American Dental Association was held at Minneapolis, commencing Aug. 4, 1885. This was in many respects the most successful meeting ever held. The attendance was unusually large, the number of new members admitted (103) unprecedented; the papers read were marked by deep and thorough scientific research and investigation, and the discussions were earnest and animated.

Delegates were present from all the most prominent State, District, and Local Societies of the United States, from nearly all the Dental Colleges, and the Dental Departments of several Universities. From New England to New Orleans, from the District of Columbia to the far West, north and south, east and west, all were alike impartially represented.

The officers, committees, and sections were as follows :

President—J. N. Crouse, Chicago, Ill.

First Vice-President—M. W. Foster, Baltimore, Md.

Second Vice-President—C. F. Rich, Saratoga, N. Y.

Recording Secretary—Geo. H. Cushing, Chicago, Ill.

Corresponding Secretary—A. W. Harlan, Chicago, Ill.

Treasurer—Geo. W. Keely, Oxford, Ohio.

EXECUTIVE COMMITTEE.

C. N. Pierce, *Chairman.* A. M. Dudley, *Secretary.*

FIRST DIVISION—COMMITTEE OF ARRANGEMENTS.

J. N. Crouse, Geo. L. Field, W. N. Morrison.

SECOND DIVISION—ON CREDENTIALS, ETHICS AND AUDITING ACCOUNTS.

A. M. Dudley, S. G. Perry, A. O. Hunt.

THIRD DIVISION—ON VOLUNTARY ESSAYS.

C. N. Pierce, L. D. Shepard, Geo. J. Friedrichs.

LOCAL COMMITTEE OF ARRANGEMENTS.

A. T. Smith, of Minneapolis; F. H. Gardiner, of Chicago ; and H. J. McKellops, of St. Louis.

SECTIONS.

SECTION I—Prosthetic Dentistry, Chemistry, and Metallurgy. John Allen, Chairman; W. H. Trueman, Secretary.

SECTION II—Dental Education. A. O. Hunt, Chairman.

SECTION III—Dental Literature and Nomenclature. J. Taft, Chairman.

SECTION IV—Operative Dentistry. L. D. Shepard, Chairman ; V. H. Jackson, Secretary.

SECTION V—Anatomy, Histology and Microscopy. C. F. W. Bodecker, Chairman; Frank Abbott, Secretary.

SECTION VI—Pathology, Therapeutics, and Materia Medica. A. W. Harlan, Chairman; F. M. Odell, Secretary.

SECTION VII—Physiology and Etiology. H. A. Smith, Chairman; N. W. Kingsley, Secretary.

The meeting was called to order at 10 A. M., with the President in the chair. The first morning session was devoted to the work of organization, the usual routine business, reports of committees, etc.

Dr. E. Parmly Brown, chairman, asked that the committee appointed at the last meeting for securing larger attendance of lapsed members, be discharged, further efforts being rendered unnecessary by the present large attendance. Information was given that old members, who had lost their membership by non-attendance and non-payment of dues, would be reinstated on payment of two years' past dues.

On motion, the committee was discharged.

A special committee, consisting of Drs. Smith, of Minneapolis, Gardiner, of Chicago, and Field, of Detroit, was appointed to make arrangements for the half-day devoted to clinics.

The Committee on Publication announced that, through arrangements renewed with the S. S. White Dental Manufacturing Co., their work had been done almost without cost to the Association; that the thanks of the committee were tendered to Mr. Hise for valuable assistance rendered; that the business minutes of the Association, from its first organization in 1856, had been compiled from the original MSS., and published for the benefit of members of the Association. On motion of Dr. H. A. Smith, of Cincinnati, the transactions were ordered bound in a more substantial manner, suitable for library purposes.

The Secretary, Dr. Geo. H. Cushing, announced the death, during the past year, of Dr. J. G. Ambler, of New York, and Dr. Isaiah Forbes, of St. Louis. Drs. Taft, Spalding (of St. Louis) and Atkinson were appointed a Committee on Necrology.

Dr. T. T. Moore, of S. C., gave notice of a motion to amend Art. IV of the Constitution, by striking out "1st Tuesday" (in August) and substituting "4th Tuesday," as the time for the annual meeting. This lays over till next year for discussion and final action.

Considerable time was consumed in calling the roll of the sections and enrolling the new members by sections, sixty-three having joined the Association at the first morning session.

Adjourned to 8 P. M.

TUESDAY EVENING SESSION.

The Committee on Voluntary Essays announced three papers, which they recommended should be read.

One from Dr. W. H. Atkinson, of New York, on "Pyorrhœa Alveolaris"; one from Dr. J. A. Robinson, Jackson, Mich., entitled

"The Painless Operation"; and one from Dr. L. C. Ingersoll, of Keokuk, Iowa, on "The Alveolar Dental Membrane." Also a paper by Dr. E. Parmly Brown, entitled "Dentistry—Its Past, Its Encouraging Present, Its Brilliant Future," which was left over from last year because of lack of time for reading.

On motion, the report was accepted.

The Treasurer reported as follows:

Balance on hand, ...	$1,823.95
Received since last meeting, . .	400.00
	$2,223.95
Expenditures as per vouchers, .	275.00
Balance on hand, ...	$1,948.95

The report was referred to the Auditing Committee.

The President stated that his time had been so fully occupied by his duties as chairman of the Committee of Arrangements, that he had not been able to prepare the customary formal address, but he hoped the results of his labors would prove more acceptable than a speech. He would only ask the members to bear in mind that they did not come merely to elect officers and have a good time generally, but that they had legitimate work to do. He would make two recommendations: First, that more work be done by the various sections, between the annual meetings, thus facilitating work during the session; and, second, that the Association defray all expenses of legitimate scientific work and original investigation in the sections. He thought this would be the most appropriate disposition of the annual income.

This proposition was received with hearty approbation, and a committee appointed to consider the subject.

Section VII. Physiology and Etiology, reported through Dr. A. H. Thompson, Topeka, Kansas, Secretary *pro tem.*, a paper by Dr. W. C. Barrett, Buffalo, N. Y., entitled "The Earthy Phosphates." Also a recommendation that the Association appropriate the sum of $200.00 for the prosecution of scientific investigation by Section VII. Upon being called Dr. Barrett read his paper.

(A full abstract will be found on page 453. The complete manuscript, according to the terms of the contract by which the proceedings are published by the S. S. White Dental Mfg. Co., is the property of *The Dental Cosmos.*)

Dr. C. W. Spalding, (St. Louis)—Said that he would not attempt to refute the general position taken in the paper, but that there were some points difficult to reconcile. As a general rule the inorganic elements are not appropriated directly, as food, but, having passed through the vegetable tissues, are used advantageously. As medicine they certainly have their value. There is one inorganic substance that is largely and generally used, that would seem to constitute an exception to the rule, and that is sodium-chloride, or common salt, which is a mineral substance that is used habitually by both man and beast. It is true that it is eliminated unaltered, but it has never been shown that *all* that is taken is thus eliminated; the quantity excluded has never been proved to be equal to the quantity that is taken in. May not a portion of it undergo decomposition within the system, and the elements be incorporated into the tissues? He said that he did not assert this to be the case, but would raise the question. Wild animals seek for salt so habitually that hunters know where to look for them. With domestic animals this might be a perverted taste—a habit acquired in domesticity—but this could not be the case with the wild animals. It must be a necessity of the animal economy. Is this salt decomposed and incorporated, or is it only used in a remedial sense?

Dr. C. N. Pierce, (Philadelphia)—The paper sets forth ideas seemingly antagonistic to the laws governing nutrition. The idea is thrown out that man is the only animal requiring therapeutic medications or remedial agents. Now we know that some animals eat clay; the dog and the cat, which are carnivorous, eat grass, in certain conditions, as a remedy. It was said that the animal system was not competent to appropriate inorganic material, but everyone knows that if chickens are deprived of lime their eggs will have no shells, indicating some deficiency in the system. We mystify ourselves by talking of organic and inorganic elements. When lime has been taken up by vegetation it is still lime, and no less inorganic. The inorganic salts are taken indirectly through the vegetable kingdom, but they are none the less inorganic because of passing through the vegetable organism. Lime is used up by vegetation and the soil exhausted; more lime must be given to the soil to supply future crops. In certain cases we can benefit patients and aid assimilation by the administration of lime-salts. Stomach fermentation is relieved by lime water; it thus aids nutrition. Diet makes

the animal; the food-habit gives form and character to the organism. Take an animal of any group—carnivorous, graminivorous, herbivorous—change the diet, accustom it to a new diet, and the whole system is changed. The different tooth-forms are the result of different diets. There is lime on the earth, in the air, in the water. Similar food-habit has made similar tooth structure; the same teeth because of the same food-habit. Dogs are carnivorous; their teeth are what they are because of their food-habit. The Polar bear is truly carnivorous; the bear of the mountains has a grinding molar because of different diet. Food and function must go hand in hand. In the human family there is a large class of children who always have a cup of fluid at hand to wash down each mouthful of food. Their teeth are soft, and soon break down; the tooth function has been delegated to the stomach. Their food contained lime enough, but the teeth were not exercised; hence the universal pathological condition called caries.

Dr. W. H. Atkinson, (New York)—Said he wished to congratulate Dr. Barrett on his growth; he was formerly the man *par excellence* to uphold the theory he now cries down. As he said, it is truly an easy thing to find testimony in favor of our theories, and to pass by all to the contrary. "One man's meat may be another man's poison." The same article may be food, medicine or poison, according to conditions, acting by reason of awakening latent energies roused by deficiencies in the system. The classification of organic and inorganic is simply a bedevilment of words. As the latest upheavals of mountains are the highest, so with words. We must modify our views, tear down false gods; be sure we are right, then go ahead. The subject is very complicated. We must have the ability to comprehend how pabulum is produced, or we may hammer away in vain till the crack of doom. There must be correct, serial, orderly arrangement of statement. A multiplicity of assumption is held of equal value with facts. What is the nature of the demand we call hunger? It is difficult to comprehend. It is an awakening of latent energies. We are not hungry in the stomach, but where the pabulum has been burned out. Dr. Spalding said that salt passes out without being changed; he had better revise his animal chemistry. All the oxygen which has passed within the grasp of the lungs is as dead as a door-nail, although only four per cent. has been appropriated, and it is the same with

salt. Of some things we can simply say "we don't know." Dr. Pierce says the food-habit forms the teeth; that the food-habit is the mother of tooth-form, or rather of the ghost of a tooth. It is assumed that matter does all things. Scientists—so-called materialists—are the wisest in assumptions. An assumption is made as the basis of a statement. An opposite assumption cancels the first, and so on. The awakening of latent energies in so-called inorganic matters renders them capable of acting. Physicists are not willing to admit that there is any power in the atom.

Dr. C. W. Spalding—Does Dr. Atkinson say that salt does not pass through the system unchanged?

Dr. Atkinson—There must be a change in the salt, as there is in the oxygen. Oxygen that has passed through the lungs is *nil* for human inhalation, though only four per cent. has been appropriated. Salt has to be similarly changed, though not to the same extent, with oxygen.

Dr. Spalding—Shall we report you as saying that salt does not reappear unchanged?

Dr. Atkinson—Report what you please.

Dr. Frank Abbott, (New York)—Said he had gone through the experiments with lime phosphates, always with the same results. In no particular instance had there been marked improvement. All but one case had failed. He had obtained no better results with treatment than without. Because in certain experiments with rabbits, two having broken legs, the one treated with lacto-phosphate of lime healed more readily than the one not so treated, lacto-phosphate was given to the world as the much-needed remedy for the teeth. It succeeded with the rabbit's legs, but fails with the human teeth. He has not given up all hope, but is yet looking for the right thing. The form in which it will be assimilated has not been found; perhaps because the phosphate we buy is not pure phosphate; it is dissolved in lactic-acid; lime three parts, phosphorus one, is the ordinary formula. Except in the form of food we fail, but every person takes in his ordinary food sufficient lime-phosphate for every purpose. Ladies in certain circumstances, however, do not retain enough food; so much is rejected, from constant nausea, that they do not obtain from their food the required quantity of these elements. This is the cause of the trouble with their teeth. One speaker said that certain elements were taken to stimulate latent

energies that had previously been depressed. We see the teeth and know they are defective; probably other organs are also defective, but we cannot see them as we do the teeth; hence, in the latter organs only, we recognize the deficiencies.

Dr. Pierce—I said the food-habit was the mother of tooth-forms. If we go into a museum with a pair of dividers and examine the lower jaw of any animal, placing one arm of the dividers on the condyles and describing the valleys in the teeth, in another class of animals placing the arm half-way between the condyles, we will find that the movement of the jaw has been the mother of the shapes of the crowns of the teeth, through the movements of the jaw.

One class—the carnivora—has dentine in the centre, enamel on the crown, and cementum on the roots; another class has the enamel on the labial surface and cementum on the palatine surface, and the incisors always sharp. The jaw of the rodent has a lateral motion; the enamel is not on the crown, but side by side with the dentine; the movement of the jaw has given the tooth-form.

Dr. L. C. Ingersoll, (Keokuk, Iowa)—Asked Dr. Pierce if he meant to say that tooth-form and function were governed by food-habit.

Dr. Pierce—The necessity for anything precedes its presence. In the absence of function there is absence of nutrition. Function causes nutrition; if nutrition is delegated to another part, function follows it.

Dr. Ingersoll—Considered it a question whether the formation of the stomach is the result of the formation of the teeth. Is cud-chewing the mother of the double stomach?

Dr. Pierce—There is much obscurity in many forms of development, but I still adhere to the principle that function is the mother of organization. The food-habit modifies the alimentary canal, as is seen by the comparative anatomy of the herbivorous and the carnivorous animals.

Dr. C. W. Spalding—If the food-habit controls the conformation and measurement of the jaws, I would ask when the habit originated? What governed the conformation of the first animal? If the development of stomach and teeth is contemporaneous—if the stomach only develops when the teeth indicate the need for solid food—how about the stomach when the teeth fail to appear?

If a child two years old has erupted no teeth, has it no stomach? There is a man in Pennsylvania who is forty years old, who has never had any teeth; he is in vigorous health, though he has no sweat-glands, and has no hair. Has he no stomach?

Dr. Sitherwood, (Bloomington, Ia.)—The results of my reading and observation agree with the position taken in the paper. There are seeming exceptions, but the rule holds good. Too much confidence is placed in feeding mineral substances. I have always been the friend of children. I left at home a sick child ten months old. Our physician has had twenty-five years more experience than I have, but when I left home I gave orders that the child should have no more of the patent "infant's foods," no mineral elements, even as medicine; only pure cow's milk and vegetable stimulants. Since my arrival I have had two dispatches, and the child is improving rapidly. The necessity of lime for egg-shells, and for salt in the human system, form two apparent exceptions to the rule, but we do not fully understand these things yet. I have no faith in administering mineral substances.

Dr. King, (Lincoln, Neb.)—We are assuming some things that we cannot fully sustain. Dr. Atkinson assumes that when we are hungry, it is not in the stomach, but in the part that needs to be supplied. My experience is that as soon as the stomach is filled, hunger is satisfied, though the parts that need the supplies are not yet reached. Marked results from the administration of the lime-salts cannot be expected immediately.

Dr. Atkinson—When what I say is impugned, I want either to prove it or be corrected. The proof that hunger is not in the stomach is seen in the common practice of the Indian, who, when he is hungry, and food is not at hand, will, by tightening his belt, bring the walls of the stomach in closer contact, so as to transmit the blood that contains food elements, and the want is satisfied, though the stomach is not filled.

Dr. Barrett (closing the discussion)—I wish that the subject presented in the paper had been more closely adhered to. We come here, not to discuss elementary truisms; we should be prepared to comprehend fundamental, basal principles. The hunger of the tissues is felt in the stomach. Supply the stomach with pabulum, and hunger is satisfied, but it is also satisfied with enemas. Thirst is satisfied by fluids in the stomach, but it is also satisfied

just as effectively by injecting the fluid into the veins. Certain tissues can be fed without the intervention of the stomach.

Our nomenclature is deficient. The terms organic and inorganic are unsatisfactory. Water is inorganic. Because of paucity of words, our nomenclature and terminology are very unsatisfactory, but we must use common terms in common discourse. It is the general law (which has its exceptions) that the animal economy, under no circumstances, can use, for trophic conditions, inorganic substances. The vegetable organizes the inorganic, then the animal can take it. One speaker cited, as triumphant refutation, that lime was necessary for egg-shells. The shell is no portion of the egg *per se;* it simply affords extraneous protection. The lime forms this covering, but it is not essential to the egg. Egg is egg—ovum is ovum—whether in or out of the body, with or without a crystalline shell. When incubation takes place outside the body, lime is required for external protection, but it forms no part of the egg itself.

Dr. G. J. Friedrichs, (New Orleans)—May I ask one question?

Dr. Barrett—I do not like to have my argument interrupted, but go on, if the question is pertinent to the discussion.

Dr. Friedrichs—You stated that the shell was no part of the egg. Now it is stated in works on physiology that the young absorb lime from the shell to form the bones; therefore the shell is essential.

Dr. Barrett—The question is not worth the answering. Animals which are oviparous have eggs with shells. When incubation is within the body there is no shell; therefore the shell is not essential to the ovum. Inorganic elements take no direct part in nutrition; they are not built up into tissues, except as crystalline deposits in an organized matrix. Their principal function is to hold in proper solution some other essential elements. Chloride of sodium is essential in osmosis; it changes the density of certain fluids so that osmosis and exosmosis can be carried on. That is why the presence of chloride of sodium is essential. I like a sharp discussion. From flint and steel we get fire, but we cannot strike a spark from a roll of butter. From the concussion of positive minds we may strike the fire of truth.

In the carnivora the average length of the alimentary canal is five times the length of the body; in the graminivora it is thirty

times. This teaches that the higher the organization of pabulum the shorter the digestive tract, or, as a general law, food elements that have been twice organized require a shorter digestive tract. For a long time we taught the administration of earthy phosphates to the mother for the nutrition of the child. This was through a misconception of the process of digestion and assimilation. The system will not take these elements from any ready-made source; nature abhors a ready-made garment. If the tissues need the carbonate or phosphate of lime, they will be elaborated within the system, but the system will not take the inorganic carbonate or phosphate of lime and build it up into the tissues.

Dr. Pierce, (by consent)—It is well known that the rocks which form the foundation of the city of Paris are made up of infusorial animals. The lime was taken out of the sea by these infusoria; these rocks are miles in extent and thousands of feet deep. This lime is already organized, having been taken up and assimilated by these microscopic animals.

Dr. Barrett—Do you call the product of the coral polyp organized?

Dr. Pierce—It is as much organized as the lime that is taken up in grain.

Dr. Barrett—Vegetation does take it up and organize it; animals do not.

On motion, the Society adjourned to 9 A. M., Wednesday.

WEDNESDAY, AUG. 5—MORNING SESSION.

The minutes of the preceding session were read and approved.

Prof. Pierce, of Philadelphia, moved that a committee of three be appointed to take into consideration the suggestions of the President relative to appropriations from the treasury for the advancement of scientific investigations, and to report on the propriety, advisability, feasibility, and expediency of adopting the suggestions.

The chair appointed Dr. Pierce, of Philadelphia; Dr. A. H. Thompson, of Topeka; and Dr. E. D. Swain, of Chicago.

The discussion under Section VII was continued.

Dr. W. H. Morgan, (Nashville, Tenn.)—Said that one speaker had assumed that the peculiar character of development was due to food-habit. The fact was, that development followed type, the

type being the result of force previously exercised. He had got the cart before the horse. Type-forms were modified by food-habit, but were not created by it. The type was also modified by exercise and use. Whenever a want is expressed in the animal economy, a desire, mental or physical, it caries with it a promise of satisfaction. There is a call for, or a need of, the salts of potassium, or of calcium, and nature has provided the supply everywhere, but he deprecated the idea of introducing the crude inorganic materials as nutrition. The line was not very clear between organic and inorganic. A potentiality was conveyed to mineral matter after it was taken into the system The human blood always has iron in it. We may administer the chemical salts of iron and increase the quantity in the system, but we do not know how much vitality it gains after the introduction. He was not prepared to take the broad ground that these elements were never incorporated into the system. There is inorganic matter in all food, and no necessity exists for introducing the crude form. When the teeth are inferior, the very material necessary to improve them is being thrown off by the system, and incrusted on the teeth. The system has a larger supply than it can appropriate. Ten times, or twenty times, as much as is needed is eliminated by the system as superfluous. This is true of the perfectly healthy body. The great trouble is in assimilation. It is digested, but not appropriated. When the matter of assimilation is regulated there will be no question of administering lime-salts.

Dr. J. J. R. Patrick, (Belleville, Ills.)—Said it had long been recognized as an established point that all matter was included in the two great divisions, organic and inorganic, and that there were three great kingdoms—the mineral, vegetable, and animal—and that was the order of creation; the mineral kingdom the forerunner of the vegetable, and that of the animal, which was impossible without the preceding two. Some vegetables and animals antedate others, but the consumed must exist before the consumer. The simpler primal forms once created, higher forms become possible. The animal kingdom is not derived, exclusively, directly from the vegetable. The lion cannot live on grass like the ox. Proximate principles are only found in cell-formation of the vegetable kingdom ready for the animal. The chemist has never been able to produce these principles. The alchemist looked forward to the

time when he could make a man outside of the regular order; the chemist, never. Mineral matter cannot be appropriated by the animal before being elaborated by the vegetable. He was surprised to hear Dr. Spalding say that salt could be taken into the system and appropriated.

Dr. Spalding—I did not state it; I raised the question.

Dr. Patrick—Salt—the chloride of sodium—goes into the system, penetrates every part of the body, does its work, and comes out of the system, still chloride of sodium. Vegetable life is the larval state of the animal. There is an anatomical reason why the tooth cannot be reconstructed. It cannot repair itself, except in the cementum. The cementum of any animal is precisely like the bone of the same animal; so exactly the same that the anatomist can classify an animal as readily by the cementum as by a bone. In the cementum, as in bone, nature forms a matrix for the deposition of new matter. The tooth hardens at the periphery, and is soft in the centre. The pulp is the remains of the organic matrix of the tooth. Bone, on the contrary, hardens at the centre first. One is centripetal in growth, the other is centrifugal. The tooth being hardened at the periphery cannot reconstruct, except in the cementum. If broken below the cementum it will repair, but not above the pulp. In old age the whole tooth is solid, but the last dentine deposited is not like the first. The dental energies were exhausted.

Dr. Thompson, (Topeka, Kan.)—Said that it depends on the powers of protoplasm. The vegetable elaborates the different elements; the animal appropriates the elements after they have been thus elaborated. We can appreciate how it is appropriated by the animal, but we cannot understand how it is elaborated by the vegetable.

Animal structures are but modified protoplasm. Man differs from the lowest orders in having limbs and muscles to control them. He differs in structure, but he is only a larger mass of protoplasm, with rigid materials holding the protoplasm in place. Vegetable protoplasm contains forty elements; animal protoplasm has not been analyzed so exactly. Vegetable protoplasm is almost constant, but animal protoplasm differs greatly. In the teeth it is very dense. The different organs and tissues differ infinitely. The whole question turns upon the ability to appropriate certain ele-

ments. With regard to the administration of mineral matter for building up animal tissues, mineral elements are not food, neither are all vegetable elements food. Morphine, for instance, and many other vegetable products are medicinal or poisonous, while much of our so-called food is really medicine.

We cannot direct the elements to any one point with certainty. The organs are selective, and take from the pabulum what they most need. In the administration of food we cannot be certain that it will benefit any one organ. Assimilation is the one great point in nutrition. One organ may be very weak and not able to select the proper elements for its own use, or to derive sustenance from the pabulum.

Dr. C. W. Spalding—Said that the gentleman from Illinois had misunderstood him; that the point he had endeavored to make clear was that salt was taken into the system by man and beast, and excreted unchanged, and that he had raised the question whether any part was appropriated, as it had not been determined that all was excreted; that it appeared probable that some part was decomposed and appropriated.

Dr. E. T. Darby, (Philadelphia)—Said that he could recall many instances where there was a hunger and craving for inorganic substances, and where the inference from results was that they were appropriated. He had known of a child, with rickets, which had such an inappeasable appetite for lime that it would crawl to the wall and pick the plaster off till it had cleared a space two feet by three. He had suggested the administration of lime in more suitable form. When lacto-phosphate and cod-liver oil had been given, the child stopped eating the plaster. In the same way, when the school-girl eats slate-pencil and chalk, it is because there is a craving for these elements in the system. Thus, when pregnant women have similar cravings, it is not fancy; it is a demand of the system which is satisfied when the proper element is supplied. The continuous administration of these elements for months, and perhaps years, may be necessary to produce results. Until this is done we cannot say that their administration has no effect. It may not always show in one child, or in one generation. He quoted the anecdote of Agassiz, the great naturalist, who advanced the theory of fish-eating for brain development. Meeting on the sea-shore a fisherman's child which had been raised on fish diet, but had a very

small head and deficient brain, it was pointed out to him as disproving his theory. He quietly replied: "But what might that boy have been if he had not eaten fish!" And so with the teeth. There is no telling what the result might not be if the lime-salts were administered faithfully and continuously. He believed it would work great results.

Dr. Atkinson—Said that he was happy in the fact that the Association had come to its right mind, and begun to investigate principles. The great difficulty lay in calling the same thing by different names, and different things by the same name. What is the function of iron in the system? It is not merely for coloring matter in the blood. The oxide of iron is a constituent of the blood; a slight increase of oxygen gives the sesqui-oxide of iron—the magnet—inviting oxygen to hang about the corpuscles with an oxygenating grip—courting, but not marrying. In this state it is carried throughout the system, and when in the neighborhood of needy territory the greater demand for oxygen in the spent tissues induces a breaking up of the courtship by appropriating the loosely-held oxygen with which the half-equivalent of oxygen making the sesqui-oxide goes, thus demagnetizing the corpuscle, leaving it a non-magnet, to be carried to the lungs and other respiratory tracts, to be again polarized by appropriation of another half-equivalent of oxygen, thus fitting it again to be an oxygen carrier.

Oxygenation and oxidation are the prime movers in nutrient and denutrient activity. Oxygen once within the grasp of the lungs, and not appropriated by the oxygenating process, has its bonds of affinity put to sleep, or made unfit to support respiration. Just ninety-six per cent. is thus rendered unfit for systemic use, and four per cent. is appropriated. This benumbed oxygen has to be vivified or awakened by passing through vegetable tisssue before it is again fitted for animal use.

On motion, the subject was passed.

COPPER AND LEAD IN FOOD.

A. Gautier shows that copper is little calculated to produce mortal results. The solubility of most of its salts, their marked color, nauseating taste, and emetic action give at once warning. The salts of lead, on the contrary, have no pronounced taste, or are even sweetish. They are in general colorless. If introduced into the system, there is no alarming effect until the nervous centers, the liver, and the blood have become interpenetrated with the poison.

PENNSYLVANIA STATE DENTAL SOCIETY.

SEVENTEENTH ANNUAL SESSION, HELD AT CRESSON, JULY 28, 29, AND 30, 1885.

REPORTED FOR THE "INDEPENDENT PRACTITIONER" BY WILLIAM H. TRUEMAN, PHILADELPHIA.

TUESDAY, JULY 28—MORNING SESSION.

The meeting was called to order at eleven o'clock by the President, Dr. George Elliott, of Meadville. About forty members and delegates were present.

The morning session was taken up with routine business, the only matter of general interest being the reading of a communication received from a committee consisting of Drs. T. W. Brophy, C. R. E. Koch, and J. N. Crouse, appointed by the Chicago Dental Society, at a meeting held Dec., 1884, to take action in reference to the meeting of the International Medical Congress at Washington in 1887. The communication requested all who were in favor of organizing a section of Oral and Dental Surgery in the International Medical Congress to use their influence to have it so organized, and that all practitioners of Dentistry, recognized by Dental Societies, may be eligible to membership or admission to the Congress.

On motion, the communication was referred to a committee consisting of Drs. Louis Jack, C. N. Pierce and E. T. Darby.

Adjourned.

At the opening of the afternoon session the above committee made the following report, which was unanimously adopted:

To the Pennsylvania State Dental Society:

Your committee, to whom was referred the communication of Drs. Brophy, Koch, and Crouse, of the Chicago Dental Society, would recommend this Society to send to the American Dental Association, at the meeting of this year, the following preamble and resolution:

PREAMBLE, This Society recognizes with satisfaction that the International Medical Congress has in its organization included a section of Oral and Dental Surgery.

Resolved, That it is the sentiment of this Society, that the organization and personnel of the section of Oral and Dental Surgery should be instituted by the American Dental Association, which

we believe in its corporate capacity is the only body fitted to satisfactorily establish said section.

We also recommend the Society to communicate with the officers of the International Medical Congress, and to suggest the propriety of placing the appointment of the members of the section of Oral and Dental Surgery, and the organization of this section, in the power of the American Dental Association; and that the Society takes this action in the belief that the result of such action by a representative association, composed of the leading persons in this country engaged in the study and practice of Oral and Dental Science, will prove entirely satisfactory.*

Signed, Louis Jack, *Chairman.*
Edwin T. Darby,
C. N. Pierce.

An address of welcome was then read by Dr. W. B. Miller, of Altoona, and responded to on behalf of the society by Dr. Gerhart, of Lewisburg. This was followed by the President's address, all of which, while quite appropriate, had no special professional bearing.

The meeting being open for professional topics, Dr. C. N. Pierce asked if it was possible for a patient to be so susceptible to the influence of mercury that an amalgam filling in the crown of a vital molar would cause pericemental inflammation.

He related the case of a lady who came to him complaining of discomfort in two adjoining molar teeth; the teeth were rather loose, quite sore, and gave every evidence of marked pericemental inflammation. On two occasions, while under medical treatment, the patient had suffered ptyalism from minute doses of some mercurial preparation, the effect being induced on each occasion accidentally, and much to the physician's surprise, thus showing a marked susceptibility to the drug. The fillings were removed and gutta-percha substituted, with almost immediate relief. In a short time the soreness disappeared, and the teeth became quite firm. The patient then called attention to two molar teeth on the other side of the mouth, also filled with amalgam. They were uncomfortable, but not so painful as those first treated. The amalgam was removed, the teeth giving every evidence of vitality. They were refilled with gutta-percha and became quite comfortable and

* Readers of the Independent Practitioner are aware that the reorganized committee of the American Medical Association has now dropped the section of Dental and Oral Surgery entirely, but this report of the committee of the Pennsylvania Society is published as indicative of the feeling of representative men of the profession.—Editor.

firm. The case had been one of much interest to him; there had been no treatment farther than substituting the gutta-percha for the amalgam. A similar case had been sent to him by a dentist, who was treating an apparently vital tooth for pericemental inflammation without satisfactory results. This also contained a large amalgam filling. He suggested that it should be removed and replaced with gutta-percha, which was done with entire relief. In each case cited the fillings were confined to the crowns, were in excellent condition, and were not in contact with the soft tissues at any point; the effect seemed to be purely local, the only evidence of the action of the mercury being the condition of the teeth, which were in each case sore, loose, and elongated.

Dr. E. T. Darby—Stated that about twenty years ago, while visiting a dental office in the western part of New York, he was shown a number of teeth markedly exostosed, most of them containing amalgam fillings. They had been recently extracted from a lady's mouth. The patient had complained of severe neuralgic pain, and after suffering for some time the teeth were extracted. Those containing the amalgam fillings were markedly exostosed, while the others appeared to be normal, and if he remembered right, were sound and healthy. The dentist who extracted them thought that the exostosis was in some way due to the amalgam. The incident was recently recalled by receiving from a dentist residing in the West a box containing a large number of specimens of exostosed teeth. On examining these he was surprised to find that a large proportion contained amalgam fillings. He was not prepared to say how the amalgam caused the exostosis, nor yet even to say that it did do so. The remarks of Dr. Pierce reminded him of it.

The discussion became general on the demerits and merits of amalgam, the question of Dr. Pierce being lost sight of.

Dr. G. L. Robb—Said that some time ago he was annoyed by the large number of teeth he filled with amalgam coming back to him, the patients complaining of severe pain, generally of a darting character, as though the pulp was pressed upon. He at last thought it might be due to the expansion of the amalgam. He discarded the make he was then using, and began using another, since which time he has had no trouble.

Dr. C. S. Beck—Had a case very much like that related by Dr. Pierce. The patient was a lady of an excitably nervous disposition.

Some time after an amalgam filling had been inserted, the tooth became troublesome. He removed the amalgam and replaced it with gutta-percha, since when it has been quite comfortable. He could assign no reason for the trouble.

Dr. William H. Trueman—Had listened with interest to the remarks of Drs. Pierce and Darby. He could not conceive that so small an amount of mercury as would escape from an amalgam filling could cause the severe local trouble spoken of without its presence being made known in other ways; and yet, we must bear in mind that there are individuals remarkably susceptible, not only to some particular drug, but also to some one marked therapeutic property of that drug. If the teeth spoken of should, after a time, be again filled with amalgam, and the symptoms previously observed recur, that would be very strong evidence that the mercury was the cause. He had met with a number of cases where pain followed the filling of a large cavity (in a vital tooth) with amalgam, and which were relieved by removing the filling and substituting gutta-percha, or one of the cements; these same teeth, after a time, were again filled with amalgam and remained comfortable. The pain complained of was more a soreness than that which usually arises from thermal changes. In these cases the amalgam evidently was not the real cause of the trouble.

With regard to the teeth spoken of by Dr. Darby, we must not forget the original lesion, the cavity of decay, which preceded the amalgam filling, and which of itself would be sufficient cause for the condition noted. We all know how slight a cause will occasionally produce exostoses, and how frequently that deviation from the normal condition is met with, and how frequently we meet with marked cases of it where there is no apparent cause of any kind, and where otherwise the teeth and their surroundings appear to be sound and healthy. If we should meet with a mouth containing some teeth filled with gold or gutta-percha, and some with amalgam, and on extraction find those filled with amalgam exostosed while the others were not, we might safely consider that as conclusive evidence that the amalgam had something to do with it. While it will not do to entirely ignore these mysterious cases, it is equally unwise to give to them undue importance. They are entitled to careful consideration and study. He was reminded by the remarks made of discussions upon the same subject which took place forty

or fifty years ago. Men who stood quite as well with the profession then as we do now related cases where they had inserted amalgam fillings in teeth that had been dead for years—without any previous treatment—and when the inevitable alveolar abscess made its appearance it was spoken of and believed to be due entirely to the poisonous effect of the amalgam. These cases were constantly cited as reasons why amalgam should never be used in the mouth. Those who spoke then undoubtedly gave utterance to their honest convictions, and believed every word they said; in the light of the present, we are amused at their blunders. This should teach us caution.

Adjourned.

(TO BE CONTINUED.)

ASSOCIATION OF DENTAL COLLEGE FACULTIES.

REPORTED BY L. P. BETHEL, D. D. S.

The second annual meeting of the National Association of Dental Faculties was held at the Sherman House, Chicago, Ill., on Friday and Saturday, July 31st and August 1st.

The colleges represented were as follows :—

Baltimore—R. B. Winder, M. W. Foster.
Pennsylvania Coll. Dental Surgery—C. N. Pierce.
Philadelphia College—S. H. Guilford.
University of Penn., Dent. Dept.—Jas Truman, E. T. Darby.
New York College of Dental Surgery—Frank Abbott.
Boston College of Dental Surgery—J. A. Follett.
Ohio Dental College—H. A. Smith.
University of Michigan—J. Taft, J. A. Watling.
Vanderbilt University—W. H. Morgan.
Iowa University—L. C. Ingersoll, A. O. Hunt.
Kansas City Dental College—J. D. Patterson.
Chicago Dental College—A. W. Harlan, T. W. Brophy.

The meeting was called to order at 11 A. M., Friday, by the President, Dr. C. N. Pierce.

The minutes of the previous meeting were read by the Secretary, Dr. H. A. Smith, and approved.

Roll call was next in order, after which the Secretary read letters from the University of Maryland, acknowledging the receipt of an invitation to unite with the Association. The faculty sanctioned the work of the Association, yet deemed it inexpedient to join, as they believed their instruction was superior to that of other colleges, etc.

On motion of Dr. Truman, the letter was referred to the Executive Committee for investigation. The next letter was from St. Louis Dental College Faculty, Drs. Fuller and Eames stating that they would subscribe to any rule or regulation the Association might adopt, etc.

On motion of Dr. Winder, the Executive Committee was instructed to furnish an order of business, to facilitate the work.

Dr. Abbott presented the following subjects for consideration by the Association, viz :

Preliminary Examinations.

Foreigners entering College.

Admission to the Senior Class.

Question of Fees.

Final Examinations.

Post Graduates.

The subject of Text-books was brought up, and, upon motion of Dr. Abbott, a committee of three was appointed to take the subject into consideration, and to designate them. President Pierce appointed Drs. Abbott, Winder, and Truman to take charge of the matter. It was then moved by J. Taft, that the meeting adjourn to meet at 3 P. M., to hear reports of committees. Carried.

AFTERNOON SESSION—FRIDAY.

The meeting was again called to order at 3 P. M. The minutes of the morning session were read and approved.

The Secretary read a letter from the Illinois Dental College, of Chicago, stating that they had just received a charter, but had organized no faculty as yet, and wished to be instructed as to the course of study they should pursue in their institution. By motion, the communication was laid on the table.

A partial report of the committee was presented, and upon motion, the reports were taken up and acted upon by sections.

The subject of " Preliminary Examinations " was brought up, and

Dr. Taft moved the adoption of the report. He thought that the object of preliminary examinations was, not to ascertain whether the student was or could become qualified to make a dentist, but rather, Has he the attainments that will allow him to go on with his preparatory work? The man who has been trained in theoretical work is better qualified to grasp the subjects brought to his attention, and the man who has the best mind is the one who is best qualified to grapple with the scientific part of the profession. He who has not mind-training and education must learn names mechanically. Those men who are ignorant should not be permitted to enter the profession, or we shall eventually find ourselves without any profession at all.

Dr. Ingersoll—I heartily support Dr. Taft's statements. If we do not start men higher up, how can we expect to graduate them higher up? What we want is men with disciplined minds, who are qualified to enter the dental profession.

Dr. Patterson—Favored the idea of the Faculties making out a set of questions each year for the different colleges.

Dr. Foster—Was not in favor of this suggestion.

Dr. Taft—Moved that the action taken last year be referred to a special committee, who shall take the matter in charge, and suggest the particular branches and the feasibility of getting up questions for the colleges, and report at the morning session. An amendment was offered that Drs. Taft, Foster and Ingersoll act as such committee. Carried as amended.

The regular order of business was suspended, and applications for membership were taken up.

Dr. Taft proposed Vanderbilt University, of Tennessee.

Dr. Morgan, of Vanderbilt University, said that owing to circumstances now existing, they could not enter the Association before next year, but they would then be ready to abide by its rulings, and he hoped the Association would admit them at that time.

Referred to a special committee for investigation, on which they reported as follows:

Resolved, That in accordance with the statements of Prof. W. H. Morgan, of Vanderbilt University Dental Department, this Association extends to him an invitation to participate in its deliberations, and it will most heartily welcome the school which he represents as a member of this Association, whenever in its judgment it shall apply for such admission.

The Chairman of the Executive Committee, Dr. Frank Abbott, stated that application for admission as a member of this Association has been made by the Vanderbilt University Dental Department, but under the circumstances the committee had concluded not to act upon it until the next meeting, in which decision Prof. Morgan fully concurred.

The regular business was again taken up, and the following resolution was read and adopted:

Resolved, That applicants for admission to our senior classes from foreign countries shall be required to furnish, properly attested, evidence of study, of attendance on lectures, etc., the same as is required of the junior students, and to pass the intermediate examinations.

Adjourned.

SATURDAY MORNING—SECOND DAY.

The meeting was called to order at 9.40. The minutes of the previous session were read and approved.

It was recommended that the fees of all colleges, as far as practicable, be made uniform. Recommendation adopted.

It was then recommended that a committee of three be appointed to settle questions that may arise between sessions. Adopted.

It was recommended that three standing committees be appointed, viz: One Executive, one on Curriculum, and one on Text-books. Adopted.

The President appointed the committees as follows: Executive Committee—Abbott, Truman and Taft. Committee on Curriculum—Taft, Brophy and Ingersoll. Committee on Text-Books—Winder, Hunt and Guilford.

A recess of one hour was taken to allow time for the committees to prepare their reports.

Re-assembled at 11.30.

The Committee on Curriculum reported on Preliminary Examinations. Report adopted, as follows:

Resolved, That a preliminary examination be required for entrance to our dental colleges; such requirements shall include a good English education. In case of any applicant failing to pass a satisfactory preliminary examination, the other colleges of this Association may be informed of the fact.

Resolved, That a candidate for matriculation who presents a diploma from a reputable literary institution, or other evidence of literary qualification, shall be admitted without further examination.

Resolved, That for preliminary examinations we recommend the following questions:

1.—Write your name in full.

2.—Give date of birth? Day, Month, Year.

3.—Where were you born? Town, County, State.

4.—Where do you now reside? Town, County, State.

5.—What educational advantages have you had? Name the schools you have attended, and the time spent in each?

6.—What branches have you studied, and to what extent have you pursued them?

7.—In what occupation have you been engaged other than that of student, and how long were you thus employed?

8.—When did you commence studying dentistry? Month, year.

9.—How many months of actual medical and dental study have you had to date?

10.—Have you attended a full course at any medical or dental school? If so, where and when?

11.—With what preceptor, or preceptors, have you studied? Give name and present residence.

Sign your name in full.

Write an English composition, of at least two hundred words, upon a subject of the examiner's selection.

Further examination to be left to the judgment of the different faculties. The examination proposed is to embrace the following: (1.) English Grammar. (2.) Arithmetic. (3.) Geography. (4.) Modern History. (5.) Government Topics.

A failure to pass the examinations may be communicated to other colleges.

Dr. Taft moved that a committee of three be appointed to draw up a schedule of the different branches and questions, and forward it to the different colleges. Carried.

Drs. Taft, Ingersoll and Harlan were appointed as such committee.

In regard to admission of students into the senior class, the following resolutions were adopted:

Resolved, That the Colleges of this Association will receive into the senior class only such juniors as hold certificates of having passed a satisfactory examination in the studies of the junior year, this certificate to be a pledge to any college to which they may apply that a previous term has been properly spent in the institution whence they came.

Resolved, That the certificate shall read as follows:

This is to certify that.....has attended one full course at the.....College of Dental Surgery..... He was absent from lectures.....weeks. He was absent from practical work.....weeks. He was examined at the close of the session, and found qualified to enter the senior class.

Resolved, That each student upon completing one regular course in any college represented in this Association shall be furnished with the above certificate, without presentation of which he shall not be accepted by any of our colleges for admission to the senior class.

Dr. Wilson then offered the following :

Resolved, That a committee of three be appointed to take into consideration the advisability of having a uniform practice in the furnishing of equipments for clinical work. Carried.

Drs. Watling, Wilson, and Darby were appointed as such committee.

Dr. Taft moved that the motion to meet biennially be reconsidered. Carried.

Dr. Taft then moved that the meeting be held one year hence. Carried.

The committee on Text-books then made a report, which was discussed at some length, after which Dr. Taft moved that a committee composed of one member of the faculty of each college in the Association be appointed to take in charge the whole matter of Text-books, and that they shall consider the matter thoroughly, and submit the report at the next regular meeting. The committee was given discretionary power, so long as they did not bring any pecuniary responsibility upon the Association. Carried.

The committee on Text-books was selected as follows :

Baltimore—Dr. Winder.	New York—Dr. Abbott.
Michigan—Dr. Taft.	Boston—Dr. Follett.
Penn. Univ.—Dr. Truman.	Iowa—Dr. Ingersoll.
Missouri—Dr. Eames.	California—Dr. Dennis.
Kansas City—Dr. Patterson.	Philadelphia—Dr. Guilford.
Ohio—Dr. Smith.	Penn. Coll.—Dr. Pierce.

Chicago—Dr. Harlan.

The Treasurer's report was read and referred to the Auditing Committee, who reported favorably. Report adopted.

Moved by Dr. Abbott that the assessment be made three ($3) dollars from each faculty. Carried.

The following were elected as officers for the ensuing year:

C. N. Pierce—President. R. B. Winder—Vice-President.
H. A. Smith—Secretary. A. W. Harlan—Treasurer.

An Executive Committee, consisting of Drs. Abbott, Truman, and Taft, was appointed for the coming year.

The reports of the proceedings were ordered printed.

There being no further business, the meeting adjourned to meet one year hence.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The National Association of Dental Examiners held its fourth session in Curtiss Hall, Minneapolis, Minn., commencing Tuesday, August 4, 1885. President J. Taft in the chair.

The following State boards were represented, the four last named being new members: Ohio, by J. Taft and H. A. Smith; Illinois, by Geo. H. Cushing, A. W. Harlan and C. A. Kitchen; Pennsylvania, by E. T. Darby; Maryland, by T. S. Waters; Michigan, by G. R. Thomas and A. T. Metcalf; Louisiana, by Joseph Bauer; Indiana, by S. B. Brown; Iowa, by W. P. Dickinson, J. T. Abbott, J. Hardman, J. F. Sanborn and E. E. Hughes; Dakota, by S. J. Hill; Kansas, by L. C. Wasson and Wm. Shirley; Wisconsin, by Edgar Palmer, C. C. Chittenden, B. G. Marcklein, E. C. French, and J. S. Reynolds; Minnesota, by S. T. Clements, and G. V. I. Brown.

The following boards belonging to the association were not present: Vermont, New Jersey, Georgia, West Virginia, Mississippi, South Carolina, and Kentucky.

The following resolutions were adopted:

Resolved, That this association most earnestly commends the action of the Wisconsin and other State Boards of Dental Examiners in refusing to accept the diplomas of the so-called Wisconsin Dental College located at Delavan, on the ground that it is not a reputable school, and recommends to all State Boards to which the diplomas of that institution shall be offered that they likewise refuse them.

Resolved, As the sense of this association, that persons engaged in the study of dentistry and physicians practicing as such, should not be considered eligible to registration as dentists.

Resolved, That this association recommends that all applicants holding diplomas from the Royal College of Dental Surgeons of Ontario be required to submit to examination before they are granted license to practice.

WHEREAS, The dental law of the State of Maryland seems to be restrictive in its character, it is the sense of this body that the dental profession of said State of Maryland should, at the next session of its Legislature, seek to cause said dental law to be so amended as to be in harmony with the dental laws of the other States.

Resolved, That the Secretary be instructed to forward a copy of the above resolution to the State Board of Dental Examiners of Maryland.

Resolved, That this association recommend all State Boards not to grant temporary licenses to first course students, or any others, unless fully satisfied that such applicants have had at least two years of practical clinical instruction. Such applicants shall pass as well a proper theoretical examination.

The following officers were then elected for the ensuing year: J. Taft, president; T. S. Waters, vice-president; George H. Cushing, secretary and treasurer.

Adjourned to meet at the place to be selected for the next meeting of the American Dental Association, on the Monday preceding the meeting of that body.

Editorial.

THE MEETING AT MINNEAPOLIS.

The late meeting of the American Dental Association was, in many respects, the most successful that has been held in years. First, the attendance was larger, over one hundred new members having been secured. Second, the papers were generally of a better character than usual, and the discussions were more intelligent and erudite. Finally, the social aspect was exceedingly pleasant, for the hospitality of the western dentists is as broad as their prairies, their love for their professional brethren as deep and as pure as the waters of their lakes. When one looks upon the teeming richness of their soil, he cannot but believe that they live directly upon the breast of mother earth, nearest the fount of nourishment, and, therefore, it should be no matter of surprise if they were able to exhibit the strongest, bravest men, and the fairest, truest women, as well as the biggest pumpkins and greatest fields of corn.

It would not be impossible successfully to criticise some things, and perhaps more benefit will be derived from a pointing out of faults to be avoided, than from ill-deserved and indiscriminate

praise. There was altogether too much of school-boy talk, but probably from an Association formed of such heterogeneous elements it would be impossible to eliminate all crudities. There are too many vain members, who speak simply that their names may be published in the reports as having taken part in the discussions, and who thus worse than waste valuable time. It is not an exhibition of which the representative American Dental Society should be proud, when members who should have made greater advances gravely proceed to ruminate upon the most elementary principles, and thus lead a discussion, that might otherwise take a higher range, into a consideration of mere puerilities and commonplace truisms. The members of a National Society are supposed to have advanced beyond mere scientific rudiments.

Those who have been in regular attendance upon the meetings of the A. D. A. cannot have failed to notice a constant growth. It is not a really scientific body as yet, but it bids fair to become such, when it learns sternly to frown down mere glittering generalities and empty rhetoric, and to view every subject from a real, and not a pseudo-imaginary scientific, stand-point.

The meeting of this year has taught that it is well occasionally to hold the sessions at extreme points of the country. It would not be safe to do this two years in succession, because if the meetings be for a number of consecutive years held in the west, it is not only a hardship to the eastern men, but it causes them soon to lose their interest in the Association. Had the question been submitted this year, it would have been easy, in a meeting composed so largely of western men, to have elected another western point for the next meeting, and thus to have given rise to a charge of sectionalism, but it was probably wisely left to the discretion of the Executive Committee, with power to call the next meeting at the point which shall seem to them to promise the best general attendance.

It was a matter of congratulation that the constitution tinkers and the by-law debaters were not out in full force, and therefore there was considerable time left for the more legitimate objects of the meeting. In fact, there was less of professional politics than for some years past. Those who consider it a smart thing to manipulate a scientific body, who attend for the mere purpose of pulling the wires, were either engaged in other business, or were absent altogether. There was something too much of it as it was, but it

was never offensively exhibited, nor was it allowed to interfere with legitimate work. It is to be hoped that we have seen the last of the wire-pullers.

The work of the Executive Committee was much more quietly done than is usual, but it was certainly as effectually performed. At some of our meetings the business committees have used up a good deal of time and created very much of confusion in their futile attempts to expedite matters. At Minneapolis the committees seemed to catch the full spirit of their mission, which is to see that affairs are conducted without friction, and not to be continually interrupting business by officious interference.

The President, Dr. J. N. Crouse, firmly insisted upon holding the Society strictly down to the questions under consideration, although he used up his gavel and nearly battered down his desk in his persistent efforts to keep order in an unruly assemblage. As a very fitting testimonial to his unremitting efforts, the Society presented him with the remnants of the gavel, first giving directions that it should be properly repaired, ornamented and inscribed.

THE PROPOSED INTERNATIONAL DENTAL CONGRESS.

At the late meeting of the American Dental Association, a proposition was advanced and a committee appointed to report upon a subject that requires careful consideration. The work was done without the discussion and interchange of views that so momentous a matter should demand, and therefore it is the more important that it be taken up in the journals. We refer to the proposition to hold an International Dental Congress during the time of the meeting of the Medical Congress in Washington, in 1887.

Those who read the editorial in the last number of this Journal will comprehend the present status in the medical profession. The work that was done by the committee first appointed has been overturned, and the section of Oral and Dental Surgery has been dropped. A new set of men is in control of the Congress, and, unfortunately, they are not, in all cases, those who are the best representatives of professional standing. Very many of those physicians who were active in the first organization and who are the best known in the medical world have resigned their positions, and have declared that they will have nothing to do with the Congress as it

is at present organized. Without their co-operation it is doomed to failure, either positive or comparative.

The object in reconstructing the general committee of the Congress was to place the control and direction of it in the hands of the American Medical Association, and to exclude from membership all societies and physicians who were not members of or loyal to that body. But the Congress has never heretofore been controlled by any one society, and it is foreign to its policy to become the guests of any such body. The quarrel over the organization has become so bitter and the dissension so public, that Sir James Paget, the President of the London Congress of 1881, has written a letter to Dr. I. Minis Hays, of Philadelphia, in which he warns the profession of America that unless these dissensions be soon healed, and the excluded members be accorded a place, the acceptance of the invitation to meet in America will probably be withdrawn, and the Congress called to meet in Berlin. Referring to the method of organization of the Congress of 1878, 1881 and 1884, he says:

"I fully believe that it was understood at Copenhagen that the same course would be pursued in the organization of the Congress at Washington. * * * * Certainly it was not supposed that the Congress would be regulated with any degree of exclusiveness by the members of one medical association, however numerous; and I think it is quite certain that if this had been thought possible, the proposal that the next meeting should be held in the United States would not have been adopted. I am sorry, also, to feel sure that if the Congress be not supported by the eminent men who have now declared that they will take no part in it, the members of the profession in this country who will attend it will be very few. And in this opinion, as well as in all that I have written here, I have the concurrence of several of the most influential of the London Congress with whom, before this writing, I consulted."

Sir William MacCormack, the Secretary-General of the London Congress, writes as follows:

"I am sure it was present to the mind of everyone there (at Copenhagen, 1884), that the invitation was one from the profession of America, and not from any section of it, or any particular medical society in it. Otherwise, I feel pretty certain that Prof. Virchow's invitation to meet on the next occasion in Berlin would have been accepted. Even now it would appear to me wiser to have that invitation renewed, or to meet in some other place, than to have a meeting in America, from which, so far as we may at present judge, many of the men on both sides of the Atlantic would absent themselves."

It may thus be seen that, under the conduct of the men at present in control of the Congress of 1887, it cannot result in anything creditable. There will be very few, if any, delegates in attendance from abroad, and it is fortunate for us that the dental section has been dropped. We desire to repeat very emphatically:—*unless there be a change in the administration of affairs, we as dentists shall only lose in dignity and standing by having anything to do with it.* Should there be the desired re-reconstruction, and things so ordered that such men as Agnew, Bartholow, Gross, Leidy, Yandell, Jacobi, Roosa, Bowditch, Warren, Tiffany, and many others can co-operate, there is little doubt that our section will be readmitted.

We cannot, without serious loss of dignity, sue to the present general committee of the Congress for reinstatement as a section, after being once dropped by them under humiliating circumstances. Nor should we wish such reinstatement, in the face of a probable failure.

Should the section not be re-established, it would, to our mind, be a very questionable act to call an International Dental Congress to meet at the same time, for the following reasons: We probably could not make of it a success. We should be in a very undignified position, as a kind of hanger-on to a Congress from which we had been rudely repulsed. We could have no connection with the Congress, any more than would a meeting of photographers, or commercial drummers, or spindle-shanked bicyclists. We would not even be a part of the tail to the medical kite, for we should have no connection with it. We could not secure foreign attendance, for the dentists of Europe would value their dignity too much to attend such a meeting, even were we so forgetful of our own as to invite them.

The only thing for dentists to do is to pursue the even tenor of their way, doing what they can for the proper reconstruction of the General Committee of the Congress. If this be secured, and the meeting promises to be a success, we shall doubtless be invited to take a part in it. If not, we are lucky to be out of it, for we should present but a sorry spectacle should we labor either for our own re-establishment in the Congress under the present regime, or for the organization of a separate International Dental Congress, and, when we were fully committed, find to our chagrin that an event, which now seems extremely probable, had occurred, and the acceptance of the invitation to meet in America had been withdrawn, and the meeting called for Berlin.

AN IMPORTANT NEW DEPARTURE.

To our apprehension there has been nothing done in the American Dental Association for years that promised so much of professional good as the appropriation of money for original research in the sections. In this the Association is doing something for scientific investigation, and is acting the part of a scientific body. No society can lay claim to being truly scientific that does not do something to encourage original study. At the meeting in Cincinnati, a prize was offered for the best paper founded on original work, and at Niagara it was duly awarded, and then by a mere remnant withdrawn again, under circumstances that cast a deep shadow over the Association. The offer of that prize was, at Minneapolis, finally withdrawn, although there were contestants for it. It was the least that could be done, in view of the action at Niagara. There is a promise of better results in the present movement, as the expenditure of the money will be left with those who best know the demands of scientific work.

Current News and Opinion.

THE ASSIMILATION OF IRON.

The following is so apropos to the discussion in the American Dental Association, reported in this number, that we give it place.—EDITOR.

Later investigations have shown conclusively that the iron administered by physicians to chlorotic patients for the purpose of forming hæmoglobin is not, even in part, absorbed. Experiments upon animals prove that, should iron salts enter the blood, toxic symptoms, similar to arsenical, would ensue. There confronts us then, this question : In what form is iron absorbed and assimilated under normal conditions ? How is hæmoglobin formed ? Milk, the exclusive food for the suckling, must contain the materials for the formation of hæmoglobin, as must also the vitellus, from whose constituents hæmoglobin is formed in the early-development period, in each case without any extraneous sources of formation. In his investigation of milk, the author encountered numerous difficulties. With hen's eggs, however, he succeeded in isolating the iron combinations in question. Upon extracting the vitellus with ether and alcohol, all the iron remained in the undissolved residue. In this residue the iron was found only in *organic* combinations. The conclusion is therefore reached that our food contains no inorganic compounds, but that it exists only in complex organic compounds *which have been formed by the vital processes.*

Dr. G. Bunge, in Zeitschrift f. Physiologische Chemie. Bd. 9.

UNIVERSITY OF MARYLAND, FACULTY OF PHYSIC, DEPARTMENT OF DENTAL SURGERY.

BALTIMORE, July 28, 1885.

To "The National Association of Dental Faculties."

GENTLEMEN:—The Faculty of the University of Maryland, Dental Department, desire to acknowledge the receipt of the "Transactions of the National Association of Dental Faculties," and also the notice of the meeting to be held in Chicago July 31st, 1885, with Article VII. of the Constitution.

I am directed by the Faculty of the University of Maryland, Dental Department, to inform your Association that they will cheerfully comply with all the requirements relating to the graduation of students in dentistry, as adopted at the meeting held in New York City and Saratoga, in August, 1884, so far as refers to *two* full courses of five months each in separate years, etc., and have published the same in our Annual Catalogue of 1885, copies of which have been mailed to the President and Secretary of your Association. At the same time, however, the Faculty of the University of Maryland, Dental Department, deem it inexpedient to join the "National Association of Dental Faculties," for the reason that they believe the present curriculum of study, etc., in the University of Maryland, to be superior to any graded course of study, such as is obligatory upon all dental schools joining your Association, for the reason that it (the graded course) restricts the junior students to the study of dental mechanism alone for the one session of the two comprising the full course, to the exclusion of operative dentistry, and therefore affords dental students the advantage of but one session in the acquirement of a knowledge of a branch of our science for which the time of two sessions is not too long.

The Faculty of the University of Maryland, Dental Department, contend that students in dental schools should have all the advantages possible of the *two* sessions in *operative* as well as in mechanical dentistry, and that the adoption of such a graded course as that required by your Association, and which restricts the dental student in the manner referred to, must be *retrogressive* instead of progressive in dental education. Respectfully, etc.,

FERDINAND J. S. GORGAS,

Dean of Dental Department, University of Maryland.

A PECULIAR CASE.

NOTE.—Close the eyes, listen attentively to the reading of the following, and see if you cannot easily imagine yourself in a Dental Society Meeting while Dr. So and So is propounding some of his lucid themes.

John Thompson was ill with malarial fever, and I prescribed for him Quinia Sulphas. The most peculiar circumstance about this case was as follows: John, as a matter of fact, had to remain in the house, and as he had nothing else to do, he held their ten-months-old baby on his lap a considerable portion of the time. During the four weeks that John was sick the baby had four teeth peep through the gums. The question at once arose in my mind, how did the quinine act to produce this result? After making a few circus rings around my bump of superlativeness, I evolved the following attenuated explanation. Naturally the child would inhale more or less of John's breath. John was taking the medicine, and of course he had a quinine-laden respiration. The child inhaled this, the quinine-germs came into contact with the gums and produced an evolution of the teeth. Or, to be more explicit, the teeth are composed of a substance that has sufficient density to produce a solution of continuity of a softer structure. The quinine-germs have a peculiar elective affinity for the teeth of children, they being rounded and located *subgumma.* The quinine-germs, being attracted by the magnetism that flows from the teeth to the food to assist in preparing it for the circulation of the liver, accumulate upon the gums over the tooth. In union there is strength, and as these germs increase in number at this place they form a powerful battery, and draw the tooth to a point, and the point pierces the solution of continuity in the gum. In the solution of this heretofore unexplained mystery we have made a wonderful discovery, and wish to call the attention of the faculty to this seeming *rara avis.*—*Cincinnati Lancet and Clinic.*

A SPECIMEN.

There are some very illiterate dentists, but it is doubtful if the following letter from a physician could be paralleled. We print it *verbatim et spellatim*, but it is impossible to reproduce the wonderful chirography. Yet the man who is capable of producing such a letter as this is the confidential professional adviser of supposably rational human beings, and is entrusted with the care of human life:

C——— Mo
July 25 1885 Mr P——— Dr
Sir i See a Piec in the Pape about the Dentel asosatin Pleas tell me if a practising physician Can Be Come a member of your order i am a Doctor and Druggist yours as Ever Dr I N———
P o Box 66

FERMENTS.

There are two great classes of ferments.

1st, The organized or formed ferments (equivalent to micro-organisms), sometimes called the true ferments.

2d, The unorganized, or unformed, or chemical ferments.

The first class comprises all the vegetable organisms that induce the fermentative process.

The second class includes:

(*a.*)—Sugar-forming ferments	Diastase. Ptyaline. Myrosine. Emulsine. Invertine, etc.
(*b.*)—Peptone-forming ferments.....	Pepsine. Trypsine. Papaine, etc.
(*c.*)—Albumen-forming ferments.....	Found in the glands of the Stomach.
(*d.*)—Glycerine-forming, or fat-splitting ferments.	Found in the secretions of the glands of the stomach, and certain intestinal glands.
(*e.*)—Ammonia-forming ferments....	Active in the formation of Urea.

In some of these fermentations acids may be formed, such as Hydrocyanic, by the action of emulsine on amygdaline; fatty acids, by the action of glycerine-forming ferments on neutral fats; salicylic acid, by the action of emulsine on the glycocide of salicylic acid, etc., etc., etc. As I showed in the early part of 1884, it is not probable that any fermentation which produces acid, other than that inaugurated by micro-organisms, occurs in the mouth.—*Extract from a letter of Dr. W. D. Miller.*

PERSONAL.

A letter from our colleague, Dr. Bodecker, dated Aug. 4th, and mailed at Kreutsnach, Germany, conveys the information that his health is materally improved. He will spend some time at St. Moritz, Switzerland, which he hopes will complete his restoration. He will return about October 1st, and Dr. W. Herbst, of Bremen, will probably accompany him on a visit to this country.

THE LAW OF FINDING.

The law of finding, says a writer, is this :—The finder has a clear title against the world, except the owner. The proprietor of a coach, or a railroad car, or a ship, has no right to demand the property on a premise. Such proprietors may make regulations in regard to lost property which will bind their employees, but they cannot bind the public. The law of finding was declared by the King's bench 100 years ago, in a case in which the facts were these: A person found a wallet containing a sum of money on a shop floor. He handed the wallet and contents to the shopkeeper, to be returned to the owner. After three years, during which the owner did not call for his property, the finder demanded the wallet and the money from the shopkeeper. The latter refused to deliver them, upon the ground that they were found on his premises. The former then sued the shopkeeper, and it was held, as above set forth, that, against all the world but the owner, the title of the finder is perfect, and the finder has been held to stand in the place of the owner, so that he was permitted to prevail in an action against a person who found an article which the plaintiff had originally found, but subsequently lost. The police have no special rights in regard to articles lost, unle s those rights are conferred by statute. Receivers of articles stolen are trustees for the owner or finder. They have no power in the absence of special statute to keep an article against the finder, any more than a finder has to retain an article against the owner.

ANÆSTHETICS—GOOD, BAD AND INDIFFERENT.

Dr. B. W. Richardson has recently published a summary of the anæsthetics, from which we condense the following :—

Considered safe: ethyl bromide, ethyl chloride, ether, ethene (olefiant gas), ethene chloride, methyl bromide, methyl chloride, methyl ether, methene chloride, methane (marsh gas), nitrous oxide.

Of doubtful value : amylene, amyl chloride, butyl chloride, benzene (benzol), carbon disulphide, carbon dioxide, carbon tetrachloride, methyl alcohol, methylal, spirits of turpentine.

Dangerous : amyl hydride, butyl hydride, carbon monoxide, ethyl hydride. Chloroform and ethene dichloride are regarded as useful, but requiring care. Dr. Richardson considers methylic ether to be the safest of all the anæsthetics.

DENTAL HYGIENE.

M. Gallippe, in a discussion before the *Societe de Medecine de Publique de Paris*, on dental hygiene in schools, insisted on the fact that overtaxing the brain by over-study in school affected dental growth. Among those students who work hard, the teeth become deteriorated a few weeks after their entry; caries is frequent among the successful pupils; the second dentition is frequently premature, and the teeth that appear are diseased. Among students who are really overworked, it frequently happens that the teeth begin to decay when hard work reaches its maximum at the time of examination, or those that are faulty grow worse, become very painful and have to be extracted.—*London Med. Record.*

A DENTAL NOVELIST.

The *Dental Record* of London is publishing as a *feuilleton* a work of dental fiction, entitled "Thurley Tighe, the Life of a Student," by the author of "Vernon Galbray," a book, the publication of which made some stir in professional circles not many years since. So far "Thurley Tighe" proves to be of great interest. It is published anonymously, but we think we are betraying no confidence when we say to our American readers that the author is the venerated "Phosphor" of the English journals, Felix Weiss, L. D. S., the librarian of the Odontological Society of Great Britain. We publish a brief communication from him in this number.

A NEW MECCA ON THE MAINE COAST.

The Underwood Spring at Falmouth Foreside is the scene of a remarkable pilgrimage. A wide-spread belief in the efficacy of its waters has taken possession of the inhabitants of the surrounding country, and a continuous procession of people, on foot and in wagons, with even carriages from the neighboring Portland, carry off the water, every conceivable vessel from a barrel to a milk-can being pressed into service for the purpose.—*Boston Post.*

HONORS HONESTLY WON.

Michigan University has properly recognized a worthy son who has reflected honor upon his Alma Mater, by conferring the honorary degree of Doctor of Philosophy upon Prof. W. D. Miller, of Berlin. The German *Kultus Ministerium* has also made of him an *Approbirter Zahnarzt.* These are honors conferred upon an American dentist at which every American dentist should rejoice.

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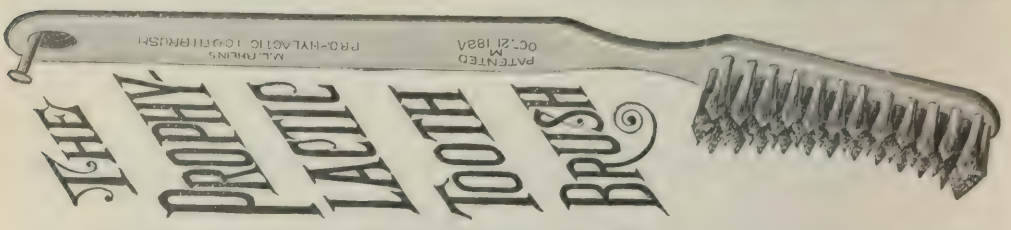
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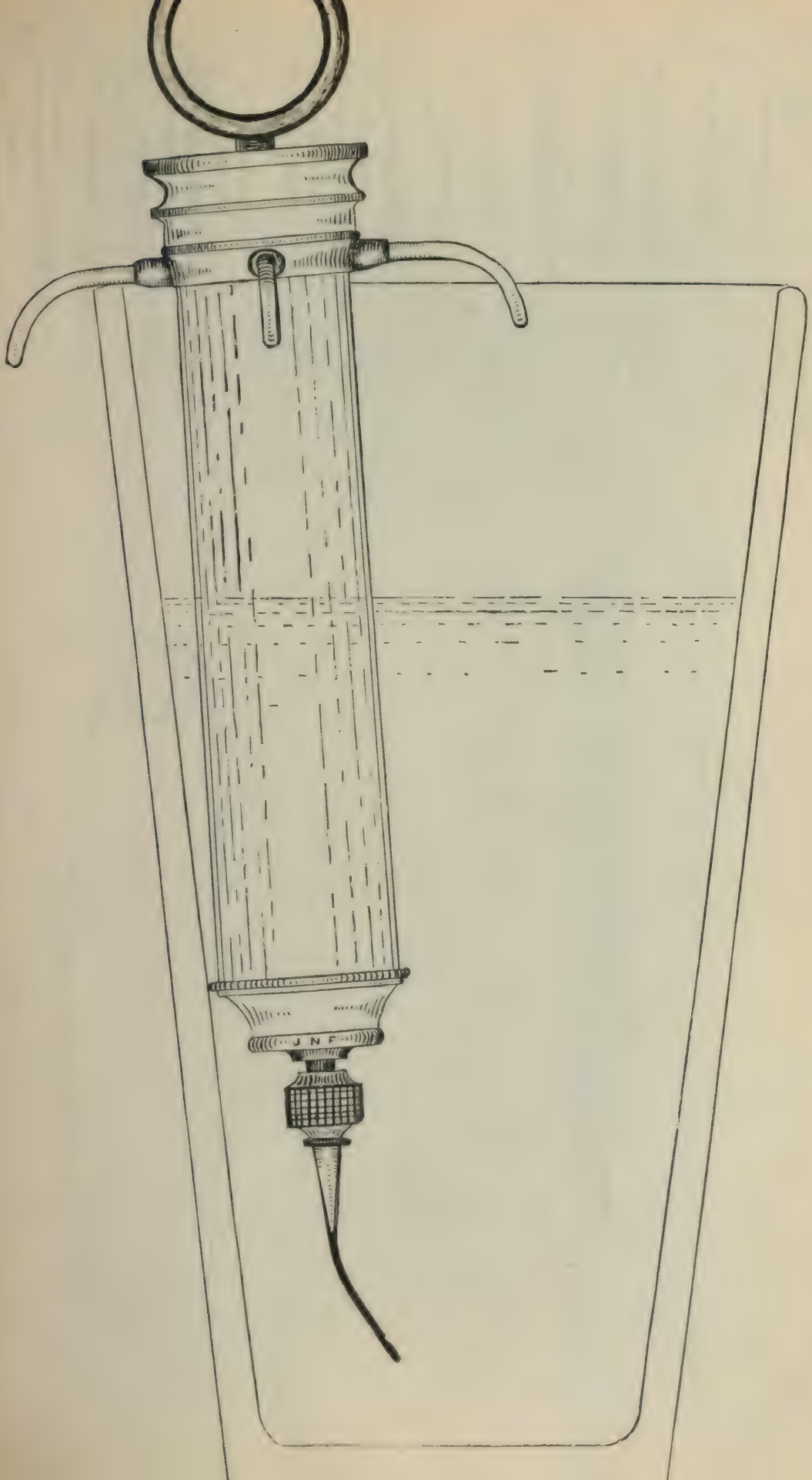
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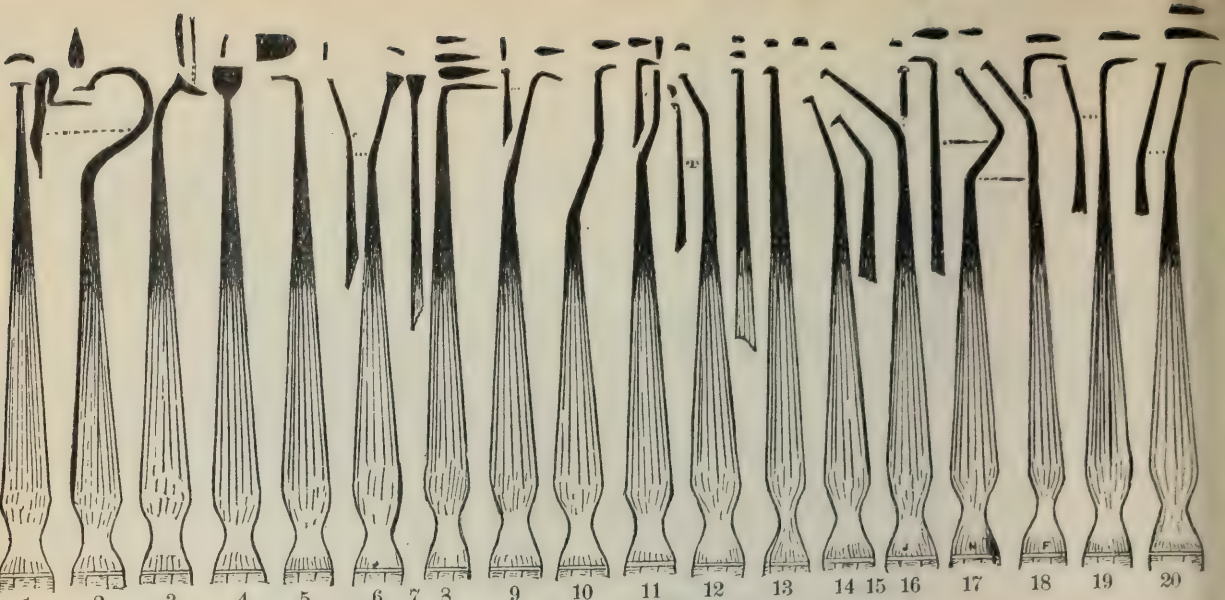
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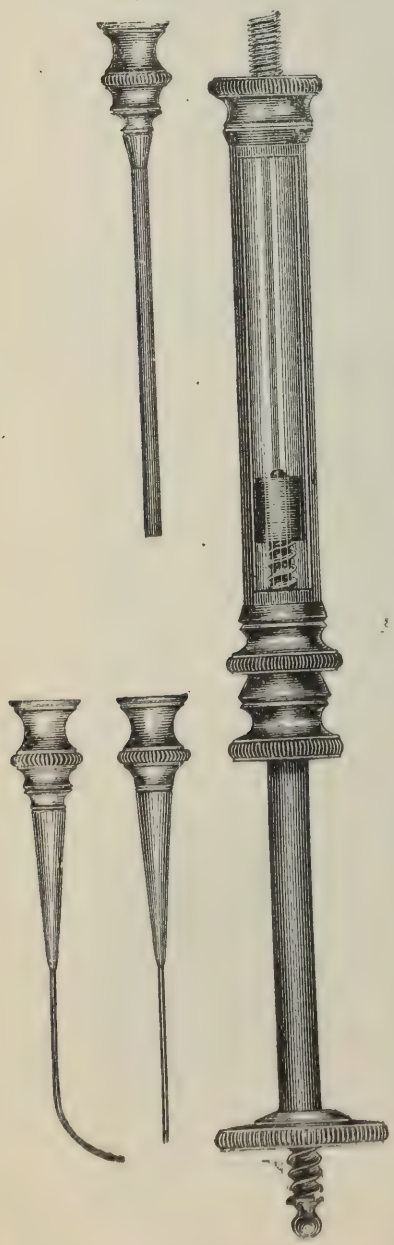
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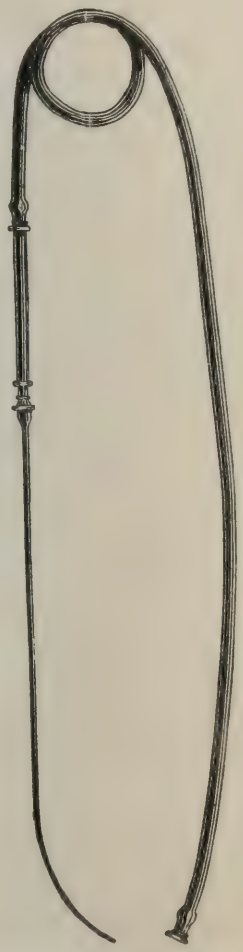
Farrar's set of Instruments for Pocket Disease of the Alveolus.

(FIG. 3.)



Farrar's Alveolar Abscess Syringe.

(FIG. 4.)



Jar Destroying Tube for Syringe
½ Diameter.

THE

Independent Practitioner.

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Original Communications.

MECHANICAL AIDS IN THE TREATMENT OF POCKET DISEASE OF THE ALVEOLUS.*

BY J. N. FARRAR, M. D., D. D. S.

Without entering into the subject of etiology, it may be broadly stated that in order to reach the highest possibilities by any plan of treatment of what is known as "pyorrhœa alveolaris," and what I will here call, without stopping to give reasons, *pocket disease of the alveolus*, as much depends upon the quality of treatment as the kind—upon thoroughness of the mechanical aspect as upon the kind of medicine. This, however, includes a degree of cleanliness that implies proper instruments as well as intelligence. Attention has not been sufficiently directed to the devising of instruments that will permit rapid thoroughness with the least injury to the tissues, and the least pain. Waste of time and needless torture have too often usurped the place of thoroughness, and mere puttering assumed that of careful skill.

In the construction of instruments, proper size is of as much importance as correct form. While variety of shape is essential in

* Dr. Farrar desires it to be distinctly understood that any dentist is at perfect liberty to make use of any of the devices which he has, either in this article or at any previous time, presented to the profession. He has never in any way profited, or desired to profit, pecuniarily, by the manufacture or sale of any dental implements which he has originated. They are his contribution to the general good of the profession.—EDITOR.

order to easily reach a locality, delicacy in structure is necessary to effectiveness, with the least pain and the least injury to the soft tissues. Small and delicate instruments permit the attainment of all that is desired; clumsy ones cannot. Different sizes, although of the same shape, may also be said to be sufficient to constitute practically as great a difference as different forms. A small bistoury in the hands of a tyro will delicately open tissues where a large scalpel in the hands of skill could only butcher. If many failures and a vast amount of injury are attributable to a bungling use of the best of instruments, and the result of the use of colossal "tools" in the hands of skill cannot be much better, the results of a combination of the bungler and the bungling can be easily imagined.

While scrapers and cutting instruments should be made with this especial reference, syringes for washing the debris from the pockets should also be constructed with the view to equal thoroughness. Unlike those in present use, which more resemble hypodermic syringes than anything else, holding only a few drops, they should be capable of holding sufficient water to flood out the pockets. A few drops of water will wet, but sufficient quantity is requisite to thorough cleansing.

Although but few properly made instruments for this purpose are to be found in the shops, several operators who have felt the need have devised for their own use several varieties, some of which should be made public for the good of the profession, for as long as this pocket disease is treated with no more appropriate instruments than the big, old-fashioned "tartar scrapers," and the teaspoon syringes, the advance along the line of the profession in this matter will be irregular and unsatisfactory.

In the hope of stimulating greater interest in others to make their own, I will briefly explain a set of instruments that I have from time to time devised by scribe rule (trial fit) for my own use, which enables me to operate more rapidly and more thoroughly, with less injury and less pain, than by any instruments which I have been able to find in the shops. An approximate idea of these may be obtained by the preceding diagram, but it should be remembered that instruments having such varied curvatures in shank and blade cannot be accurately shown. Slight variation of shape, especially in the shank, is sufficient to make the difference between practicable and impracticable.

When a location of the di ease was found that could not be easily reached with anything that I had, I selected a rod of soft steel from a lot partially prepared for the purpose, and bent, hammered, filed and fitted it on the spot, and, after using it for a week or two to see that it was all right, it was tempered for permanent use. In this way a set of about thirty instruments came into existence. While some are more generally useful than others, yet for the purpose intended all are valuable to me, but perhaps a dozen might be selected that would suffice.

In this set, instead of the smallest peach-leaf hoe-scrapers being five-eighths of an inch in length, as usually found in the shops, the largest is only three-eighths of an inch, and they range down to one thirty-second of an inch in length, while the pocket-hoes, such as Nos. 13 and 14, are very much less. Another peculiarity of these peach-leaf blades lies in their points being rounded, some of which also have only one cutting edge, in order to avoid deepening of the pockets or lacerating the soft tissues while scraping the roots. This is important, for while bleeding to a limited extent is beneficial, unnecessary injury of these tissues is injurious.

Fig. 2 approximately illustrates one or two views of the shanks and blades of twenty of the set of cutting and scraping instruments referred to, but as Nos. 6, 11, 17, and 20 are in pairs, and only one of each is shown in the diagram, they practically illustrate twenty-four, as follows :

No. 1—Straight shank, curved blade hoe, for cervical work.

No. 2—Two views of one of a pair of molar cervical peach-leaf-shaped hoes, with a bowed shank to hold the cheek away.

No. 3—A chisel for use between the lower front teeth (from the inside).

No. 4—A thin chisel for use between teeth from the outside.

No. 5—Hoe scaler for side teeth.

No. 6—Two views of a root scraper, with curved shank for a pushing movement.

No. 7—Straight shank, root push-scraper.

No. 8—Four sizes of peach-leaf hoe scrapers, double edge.

No. 9—Two views of curved shank, peach-leaf hoe (delicate).

No. 10—Double bent shank, peach-leaf hoe, (delicate).

No. 11—Double bent shank, side, right and left, peach-leaf hoe, (delicate ; two views).

No. 12—Root hoe-scraper with curved shank, side blade, (two views).

No. 13—Root hoe-scrapers, straight shank (should be more delicate than here shown).

Nos. 14, 15, and 16—Different sizes of single curved shank, root hoe-scrapers.

Nos. 17 and 18—Different views of triple curved shank scrapers, with side blade for approximal surfaces.

Nos. 19 and 20—Different views of single curved shank, cervical hoes, with one sharp edge only.

While the cut shows the general forms of the instruments, the size and length of the shanks may be varied to advantage, but they should all be as delicate as is possibly consistent with firm rigidity, and tempered very hard. Any elasticity is a disadvantage. The handles may be file-cut steel, but are better if made of wood.

All root hoes should be very small, about the size of No. 14, or even less. The plain views shown, Nos. 12–13, are too large.

After the hard deposits have been detached from the roots, or after cutting loose necrotic tissue (when present), it is necessary, in order to effect the most rapid cure, that the debris be thoroughly washed away, leaving no particles to be "ulcerated out," as is too often the case. This requires water in sufficient quantity to flood out the pockets with a vigorous stream, long continued, which implies a syringe of considerable size. I make use of four syringes for this purpose, with capacities varying from two to four ounces, which I had made from my own designs. (See Fig. 1.)

While the nozzle is of the same form as those used on the Farrar Alveolar Abscess Syringe (Fig. 3), the points are somewhat larger than the "proboscis size;" indeed, several sizes are necessary to meet all cases. While one end of the body of the nozzle is screw-threaded to firmly fix it to the syringe, the detachable thumb-hub to which it is attached has a smooth hole through it, which fits a tapering stub, enabling it to be easily and quickly removed and readjusted when charging the syringe with water. By way of variety, one of my larger syringes has a little hollow thumb-wheel stop-cock set in a fixed hub, but this is not as convenient as the other.

As these delicate points of the nozzles would be easily broken by the weight of such large syringes, finger-hooks are made to project from an annular ring around the head of the syringe, to enable it

to be hung upon the edge of a tumbler, as shown in the figure. These hooks are also useful in grasping and holding the syringe firmly while in use.

Fig. 4 illustrates a rubber tubing, sometimes useful in painful cases, to interpose between the syringe and the diseased tissue, to cut off the jar unavoidable in driving the water out. This, however, is seldom necessary.

Without enlarging upon the subject by stating reasons, I will conclude by saying (as stated in a former paper published in the *Missouri Dental Journal*, June 1879, page 305), after thoroughly washing the pockets with tepid water, and if there is no necrosis, I inject them with equal parts of wood creosote and alcohol from a Farrar Alveolar Abscess Syringe (Fig. 3); but if necrotic tissue is present, I use chloride of zinc, just short of escharotic strength.

SOME OF THE PATHOLOGICAL CONDITIONS OF THE ORAL CAVITY.

BY F. D. NELLES, D. D. S.

READ BEFORE THE FIFTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

In fulfillment of the conditions of the requirements for such a paper as you have asked of me, nothing would have been easier than to have turned to some good pathological treatise and given a classified list of the various diseases having their seat in the oral cavity, of which all of us know more or less, theoretically, but which no two would treat exactly the same when the practical case is presented.

To give this assertion more the semblance of a fact, allow me to cite the following examples: A regular patient came to the office one day, asking the cause of a certain prominence located in the maxillary process of the superior jaw. There was no aching, no pain, no redness of the gums, and no inflammatory action apparent. Neither was there any soreness of the incisors over which the fullness was located. Now, what was the difficulty? Let us examine the case a little further. The age of the patient was fifty years or more; the teeth were abraded. Did that mean anything? Might there not be a putrescent pulp in one of the teeth? A brother practitioner happening to be present at the time, and being desirous of

ascertaining whether two dentists could agree in tracing effect to cause, he was invited to assist in clearing up the mystery, for as such it must be considered until all doubt was set at rest. That it was something abnormal we were well agreed, but differed as to the mode of treatment. He recommended painting over with a solution of iodine; but why not as well paint the integument of the face, including the alæ of the nose and a portion of the lip, where the fullness was quite visible? The advantage, however, was mine, as the patient had come to me. I announced that we would treat the case heroically, and he, with some astonishment, saw me select a bur of proper size and drill through to the pulp-chamber. A free discharge of pus quickly followed, and the treatment thereafter was very easy. That was more than nine years ago, and the tooth now, abraded to the very gums, is still doing good service.

It might be well to observe that a collection of pus, under such circumstances, when unattended with redness, tenderness, and devoid of all inflammatory signs, is said to be either a chronic or cold abscess, yielding a pus markedly different from that which is designated as laudable, it being much thinner and more sanious.

The other case to which I desire to call your attention, was that of a girl about twelve years of age, who complained of two very sore teeth, the inferior central incisors. The appearance of the countenance and eyes was such as invariably accompanies affections of anginous origin. The teeth were not only sore, but loose, and raised from their sockets. For comfort, the jaws were kept well asunder, causing the saliva to run unrestrained from her mouth. The gums were not red nor swollen, but unnaturally light in color. She had received no blow or fall, no injury of a mechanical nature. Now, what could have been the cause of the trouble?

Let us look into the case a little further. Just behind the front teeth lie two little glands—the sublinguals. They were found to be enlarged beyond the normal size, but were free from any inflammatory signs. Such being the case, how could one conscientiously decide that they were the cause of the trouble. A prescription, based upon this supposition, was, however, made: ℞ Ammonia Chloridi, drachms two, water sufficient to make four ounces, to be held in the mouth in teaspoonful quantities several minutes before spitting out, fifteen or twenty times a day until all pain was gone, then to come again.

In about four weeks two little girls came to the office, one to have a tooth extracted. When she had been disposed of I looked at her companion and recognized in her the girl of the sore teeth. When asked why she had not come back the following day as requested, she replied, "Oh, the teeth got well right away," and upon looking I found she had spoken truthfully, as there was then nothing remaining to indicate that the teeth had ever been affected.

I have arrived at that point now, where I hope we shall begin to understand that in treating diseases of the mouth successfully, much of our skill lies in a clear-sighted diagnosis. The oral cavity has been the *open sesame* to most physicians of the past, and will continue to be the object of examination just so long as it supplies a talismanic guide to distinguish the difference between certain kinds of diseases preying upon the human system. If diseases of the general system can be the better established by conditional aspects of the mucus membrane of the mouth for physical practice, why not for dental practice as well? Rheumatism, when it has become chronic, will affect the teeth and gums inversely, as other organs of the body. With this disease we may look for inordinately pale gums and resorption of the alveolar process, deposition of tartar, reaching from the necks of the teeth to the receded gums, an eighth of an inch, more or less. Both upper and under jaws will be affected about alike, and the recession of the gums around the incisors and bicuspids pretty even, showing most on the labial and buccal surfaces. The tartar will be found light in shade, tenacious, and intruding underneath the free edge of the gums. Creamy deposits of food and fatty matters will be found adhering to the tartar. Touched with litmus paper, it will always give an acid reaction. The teeth will be more or less decayed on the labial and buccal surfaces. The treatment will consist in removing the tartar, filling the cavities, and giving alkaline washes for the mouth and teeth. Sulphite of soda, one-half drachm to about eight ounces of water, makes an excellent detergent. One ounce of this solution poured in a cup in which the brush is repeatedly dipped, holding some of it in the mouth while brushing, will thoroughly cleanse the teeth and mouth. It is a little unfortunate, perhaps, that in the treatment of such diseases we have so small a field as the mouth affords to labor in. Had we the power accorded to the family physician, in treating diseases of a general origin that produce such

devastating effects upon the teeth, we might in many cases accomplish more pleasing results.

It will never do for us, any more than for physicians, to ignore the fact that the mucous membrane, all of that portion of it which lines the mouth, invites our especial attention. The teeth, although dense and flint-like in structure, are of dermic origin, and derive their nutrition wholly from this source. Is it not natural, therefore, to reason that any disease having its seat in this membrane in more ways than one will affect the teeth? If acute adenomata of the sublingual glands will do this, may we not assume that other glands, if even more remote, may produce similar disturbances? When examining pathological works touching upon this subject, most of them will be found more or less explicit in tracing affections of the mucous membrane from structure to structure, tissue to tissue, until all abnormal changes are traced, save those affecting the teeth. For further knowledge we must turn to dental pathology, where we find much about teeth, and little, too little, about the soft tissues. It is true we now and then get an essay from some bright mind, theoretically advocating that all, or nearly all, diseases of the mouth spring from carious teeth, but another soon comes forward with the argument that all, or nearly all, such diseases arise from calcareous deposits upon the teeth. Still another will proclaim it is neither the one nor the other, but that the material which is put in carious teeth as fillings is the cause of all, or nearly all, the diseases incidental to the mouth. So, when we come to prescribe for diseases of the oral cavity, if we trust entirely to the books, we shall continue in darkness.

The gums may be atrophied or hypertrophied, it matters but little which. The inflammatory redness accompanying gingivitis will never be wanting. If, however, an atrophied condition prevails, the treatment will be found comparatively easy, as nothing much will be required but removal of the tartar, found almost invariably free from and above the gums. But this state of things is entirely different when the gums are in a hypertrophied condition. Then the free edge of the gums will be much thickened and operculous. The fibrous attachments running from the tooth membrane to the gums will seem absorbed. Each and every tooth will seem placed in the gums mechanically, with a little dirt of a dark or lightish hue thrown around them, as if in hope that they may some day take

root and grow. But a more careful examination will show this to be tartar. The treatment will consist in removing the tartar with alkaline washes, sulphite of soda, sulphate of potash or borax, given in solution, one to two drachms in four to eight ounces of water. Give them singly. Sometimes the potash will do more good than the soda.

A solution of tannic acid with alcohol will sometimes do better in such cases than alkaline washes. One objection to it is, that it will stain the exposed cementum at the necks of the teeth, if kept up too long. Two to three grains of tannin to one ounce of undiluted alcohol will be sufficiently strong. A better formula, however, would be the following:

Tannic Acid, grs. iii.
Alcohol absolute, drachms iii.
Water distilled, do. v.

Add the tannin to the water. Shake, and then add the alcohol. It may be flavored with two to five drops of oil of wintergreen. This must be dropped into the alcohol previous to adding it to the water and tannin. The manner of using this wash has much to do with its ultimate success. The instructions should be to brush the teeth as usual, with water, rinse out the mouth, and wash out the brush; now pour on the brush as much of the solution as it will hold without wasting, and go over the teeth and gums with the brush carefully, as if they had not been previously brushed.

TOO LITTLE OF A GOOD THING.

BY J. G. TEMPLETON, D. D. S., PITTSBURGH.

READ BEFORE THE PENNSYLVANIA STATE SOCIETY AT ITS SEVENTEENTH ANNUAL MEETING AT CRESSON.

"A little learning is a dangerous thing,
Drink deep, or taste not the Pierian spring,
For shallow draughts intoxicate the brain,
But drinking largely sobers us again."

It is not our purpose to give even an epitomized history of education. Neither do we intend to specify minutely all the particular studies that should form a part or all of the preliminary training of the dental student.

But as we begin to write, the thoughts of what is needed come thick and fast. Swift memory reverts to student days and college associations as the most pleasant of life.

Though we write in waking hours, we cannot refrain from quoting those beautiful lines of the poet, Thos. Moore, where, in speaking of his memories, he says:

"Oft in the stilly night,
Ere slumber's chain has bound me,
Fond memory brings the light
Of other days around me."

This same memory would be treacherous indeed if it could not, with college life, recollect some things in connection with Grecian and Roman history.

We wish to apply to preliminary education for the dental student what Demosthenes said when he was asked "What is the true relation of Athens to Greece?" His reply was, "Athens is the natural head of Greece." Such, in his belief, was the part that Athens must perform if Greece was to be safe and progress as a nation.

As Athens was to Greece, so stands a thorough education in its relation to progress in our profession. The evils to be cured are but different phases of one malady. To accomplish our purpose this education must be such as to fully develop the intellectual faculties.

It must not be one-sided, like the training which prevailed at one time in that great empire that ruled the world from the city of the Seven Hills. The Romans understood no system of training but that of oratory. They knew no science of government or of political economy. Cicero, the great Roman orator, who could fire the Roman Senate with his eloquence, and excite the Roman people to undertake gigantic wars and gain mighty conquests, speaks lightly of jurisprudence. "Any one" says he, "can make himself a jurisconsult in a week, but an orator is the production of a lifetime." In his day an orator was thought to be a perfect man, but this barrier was broken by or through the influence of Quintilian, who gave a system of training, though intended only for public speakers, but of which Milton says it would "fit a man to perform justly, wisely, and magnanimously all the offices, both public and private, of peace and war." If, in the opinion of such a man as Milton, such

grand results could be obtained from the teachings of one who lived in the time of Emperors Vespasian and Domitian, eighteen centuries ago, where is our boasted progress; or do we ask too much if we demand that a student of dentistry shall have such an education as will fit him to perform any or all the duties of any office in the gift of his fellow-citizens?

The satisfaction, the pleasure derived, and the benefit to any person having a liberal education, amply repay its possessor for all the time, study, or labor and money spent in obtaining it; in brief, it is worth all it costs.

The aim of all should be a good preliminary training. The time thus spent is time gained afterward in the facility of comprehending whatever is brought before the mind. This mental discipline of which we speak, and which we deem so important and necessary, is the sure foundation for the superstructure of scientific professional knowledge. With the understanding of the origin and derivation of words comes their meaning, and the dictionary is not so often needed. The educated mind sees and immediately admires the grand beauty of the comprehensive technical term, which is not only a name, but also a definition as well. With qualifications as above indicated, progress in professional knowledge may be rapid and comparatively easy, according to the amount of energy and persistence of the student.

Preparatory work does not come within the province of professional schools of any kind.

In all our dental and medical colleges the curriculum of study is based on the supposition that all who come to these institutions have had the advantages of a liberal, or at least a sufficient preliminary education, that will qualify the student to receive the lectures intelligently, with a readiness of perception and retentive memory, which, with rare exception, is only acquired by a proper course of mental discipline; hence the educated student at the dental college receives more for his time and money spent in attendance at the lectures, because of his greater mental capacity. From his familiarity with the original languages, he understands all nomenclature, and sees a beauty in the adaptation which the scholar only can see. Besides his having a knowledge of the natural sciences, he is prepared to grasp their application to professional subjects the moment they are announced by the lecturer. With such advantages in favor

of preliminary attainments, why should we not as a profession demand it of our students? Some one says he is too poor; he cannot afford the expense connected therewith. All we have to say to such objectors is that "Where there is a will there is a way." The avenues to learning are not closed, and all who desire can avail themselves of the advantages offered in the literary institutions of our country. Here it is worthy of remark that very many of the best and most prominent men of all professions are those who have earned the money with which to educate themselves.

There are many points incidental to our theme that might be elaborated, but the limits of this paper forbid, and I forbear, with one or two exceptions.

We look with pride and satisfaction on the reputation that American dentistry has attained abroad for progress and perfection. We have heard how the phrase "American Dentist," displayed on signs, has been the passport to many a lucrative practice. Yet none know better than we do of the vast amount of suffering, deformity, and disfigurement occasioned by the ignorance of so-called dentists in this country. Such things occur all around us, everyday, at the hands of men who know too little to know that they know but little.

That this elaborate training of which we have spoken is needed in dental education cannot be successfully controverted; then why should we not, as a profession, use every effort possible to close all short roads to dental practice, and impress upon the minds of all the necessity of learning also that:—

> "Learning by study must be won;
> 'Twas ne'er entailed from sire to son."

GASTROTOMY FOR REMOVAL OF AN ARTIFICIAL DENTURE.

BY DR. W. D. MILLER.

Whether it is owing to the fact that artificial dentures are more universally worn now than formerly, or that the statistics of teeth-swallowing are more accurately kept, I am unable to say. At all events, the number of accidents from this source, which have been reported in the dental journals, seems, in the last few years, to have undergone a considerable increase.

The greater number of "swallowed" plates have been removed through the oral cavity, without very great difficulty and without any serious results. A few have required Tracheotomy; a considerable number have passed safely through the alimentary tract, while a very few have remained lodged in the stomach.

I am indebted to Dr. N. S. Jenkins, of Dresden, for the report of a case of the last class, where the plate was successfully removed by gastrotomy, this being the second case where this operation has been performed for the removal of swallowed teeth.

"Patient—a barber, twenty-three years old, unmarried, healthy, with no constitutional taint—swallowed a partial upper set (on vulcanite) of six teeth about two weeks ago, a small suction plate with clasp, seemingly some four to five ctm. in diameter. Four days elapsed before he consulted a surgeon. When at last the fact was established that the plate was lodged in the stomach, an operation was decided upon. Before being chloroformed the digestive apparatus was brought into the best possible condition, and a morphine injection given to minimize the tendency to vomit. Incision was made of about ten to fifteen cm., transversely over the pyloric extremity of the stomach. Great care was taken to ligate severed arteries immediately, so that little blood should be lost, and the Lister apparatus and the solution of corrosive sublimate were in constant use. When the stomach was exposed, examination at once showed that the plate was lodged at the pyloric extremity, as had been expected. This portion of the stomach was then drawn out, and ligatures passed through the muscular coat and securely held to prevent the stomach from being drawn back into the abdominal cavity by retching, or any other convulsive movement which might supervene, and then an opening made only just large enough to admit of the extraction of the plate. Great care was also taken not to admit any foreign substance into the stomach. The sewing of the inner coat of the stomach was most beautifully done, the knots of the ligatures being turned inward, that they might find later the easiest exit. Indeed, I could not sufficiently admire the skill with which Dr. Credé tied every ligature, with a perfect appreciation of just how much force was necessary to make a perfect result with every tissue. This is the nicest test of a surgeon's hand. If tied too tight, they tear; if not tight enough, they fail to keep the parts approximate to each other. Exactly an hour was required from the first cut to the final

bandaging. At this time of writing (the second day after the operation) the patient is doing as well as could be expected, and there seems to be no reason why a perfect cure should not be looked forward to, and another success be scored by this brilliant young surgeon."

The patient was dismissed perfectly well two weeks later.

A REPLY TO DR. C. H. LAND'S CRITICAL REVIEW.

BY W. B. AMES, D. D. S.

How Dr. Land, or any fair-minded man could read my paper, published in the July number, and construe it in such a way as to make me an advocate of air chambers, I fail to understand. I very plainly stated, in a paragraph which I will quote, that I did *not* employ them, and I will now say that I would especially avoid the use of an air chamber form, such as I believe my critic has upon the market, that would give more relief over the lateral "interior surface of the mouth" than over the firm surface which we generally find at the central region of the palate. In my paper in the July number, I say:

"Cases have been cited where mouths have been satisfactorily fitted with plain plates, after various failures with plates depending on the suction of a central chamber had been met with, but the citer never describes the relations of his plate to the tissues beneath and about it, which would indicate that a stroke of luck was to be credited with the results. In these cases I hold that something more than the adhesion of contact or capillary attraction must have been secured, either rationally or otherwise, and that this something is a powerful pressure of the atmosphere. This pressure I am able to obtain with plates devoid of any central cavity or air chamber," etc.

That upper artificial dentures can be retained with more satisfaction by utilizing the pressure of the atmosphere after a proper distribution of the bearing (not relief) than by any other method, I have not the shadow of a doubt.

I think that most unprejudiced readers will recognize the conditions which I endeavor to bring about with a denture constructed according to the specifications of my paper. The method of expelling the air from beneath such a denture is not by the action of the muscles about the base of the tongue, as in sucking the air from a lamp chim-

ney, but by merely pressing the denture to its place. Thus, ordinarily, the only pressure manifested is such as overcomes the weight of the denture, plus the weight or pressure of the displaced lax tissues. This pressure, except in the case of a tobacco or gum-chewer, or of a mouth-breather, would be replaced by the pressure of the occluding jaw during a large proportion of the day, so that there is not any injurious traction upon the tissues, except in mastication, or during efforts to displace the denture. It is then, and then only, that the "powerful pressure of the atmosphere" is manifested. The extent of this pressure depends altogether upon the extent and rigidity of the firm tissues covering the jaw.

The simple fact that air is elastic, is for me sufficient reason for its exclusion from beneath the denture to as great an extent as is possible, which I endeavor to accomplish by causing the latter to bear as equally as possible upon all parts of the mouth which it covers.

My reviewer's ideas of air spaces for relief, and an intermediate fluid for retention, are slightly amusing. In the first experiment of the "Review" there is no analogy to the principles which I advanced. The second experiment approaches a representation of the action of such a denture as I construct, but the reviewer apparently does not catch the true light revealed by it. I will suggest that he cement one of his leather disks to a piece of wood, or hard rubber, to the center of which the string is attached, and observe how much adhesion there is between the leather and a moist surface.

I will describe an experiment which is easily conducted, and which will illustrate the action of such a denture as I advocate.

Take an ordinary glass or brass tube of any size, one end of which has been cut at right angles to fit evenly upon a flat surface. Fill this tube with melted beeswax; allow it to harden, and cut from the perfect end a layer of the wax equal in thickness to a piece of heavy rubber dam. Then wet both sides of a piece of the dam, lay it upon a flat surface and press the tube firmly upon it, when it will be found to be held down by a far greater force than that which holds a leather disk of the same size when the string is attached directly to its center. In this experiment the air is expelled from the cavity in the end of the tube by the rubber which filled it, and it is prevented from returning by the close joint formed between the compressed rubber and the edge of the tube, just as the displaced

lax tissues form a close joint in the mouth. I think that I have satisfied a few of the profession, before whom I have given clinics, that a long chimney, from which only so much air has been exhausted as will permit it to support one pound to the square inch, does not illustrate all the factors in the problem of atmospheric pressure in the mouth.

THE USE OF ENGLISH TUBE TEETH.

BY LAWRENCE VANDERPANT, L. D. S., ORANGE, N. J.

The English firm of dental manufacturers, Messrs. Ash & Sons, have brought to this country a large stock of artificial teeth, some of which would sorely puzzle the average American dentist to utilize. They are called "Tube Teeth," and are almost a counterpart of a natural tooth, excepting that the nerve canal is of larger diameter, passing entirely through the tooth, and it is furnished with a solid, substantial lining of platina.

Until some twenty-five years since, this description was the artificial tooth, principally, if not entirely, used by the European dentist (certainly the English), the majority not even knowing the method of working "American Flat-back Teeth" as they were called.

Now these old-fashioned English teeth, which will doubtless be pronounced by some of our shining lights remnants of old fogyism, are not without their use in modern practice, as I propose to show, and are a very useful adjunct in the office of the practitioner of prosthesis. In a case, for example, where we desire to replace the lost bicuspids and molars by means of a gold or platina plate, they will afford a stronger, broader, and more solid masticating surface; they can be much more accurately fitted to the plate and hermetically united to it by means of the sulphur cement employed in fastening them to the metal pins, so that they are more cleanly in wear than plate teeth of ordinary construction. As only a very small quantity of solder and heat is requisite in mounting, there is no danger of warping the plate, and last, but not least, in case of fracture, tooth or teeth are readily and quickly replaced without the necessity of passing the plate through the fire, which will be an acknowledged advantage. But of more general and especial value would they be likely to prove in crown or pivot work, using them some-

what after the plan of Bonwill or Howe, that is to say, securing, by means of amalgam, cement, or gutta-percha, a pin, pivot, or post into the natural root, and adjusting thereon the artificial tooth crown.

The plan I adopt myself is to first prepare the root and canal, and I find it a saving of much time and trouble to take a small wax model and articulation of the region in process of repair, making a plaster cast therefrom, and to accurately fit and articulate the Tube Tooth to it. It is now absolutely requisite to have "Easy tube sized hard platina or dental alloy wire,"* and proceed to complete the work at the chair. Determine the length of wire requisite for the root and carefully "tin" this portion only.

It may be unnecessary to state here that this is very easily accomplished by dipping the pin into a solution of chloride of zinc, heating it over an alcohol lamp, and rubbing it upon a piece of common domestic tin previously heated.

Two or three small scraps of zinc immersed in dilute muriatic acid (a drachm or so) will conveniently form the chloride.

Roughly and deeply "barb" the root portion of the pin, cut off accurately sufficient to carry the Tube Tooth, and file up to the bifurcation of its lingual surface.

The pin is now securely fixed into the root with amalgam, taking care that its position shall exactly correspond with the tube in the crown.

I should have anticipated the fastening of the Tube Tooth to the pin by advising it to be just sufficiently roughened to catch a strand or two of finest floss silk, previous to fixing it in the root.

It will be within the discretion of the operator to await the thorough hardening of the amalgam previous to securing the crown, or to proceed at once; in either case, it is merely necessary to wind a small quantity of floss silk around the pin and apply a strong mastic solution to the tube, and press the tooth into position by a suitable pair of forceps protected with chamois skin; possibly a judicious tap or two of the protected mallet may make a more perfect joint. The following day an artistic finish may be given to the pin head and lingual surface of the tooth by means of a round headed corundum bur in the engine. I claim for this method many

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* The manufacturers supply this wire to exact gauge requisite.

advantages over different methods now in vogue; prominently may be mentioned, great strength, not only from the platina tube, but from the superior hardness and density of the tooth body, and that the crown is fixed without danger of displacement the moment the patient leaves the chair. The objection might be raised that you do not secure a water-tight joint, but I doubt not natural ingenuity will readily surmount this objection.

The weak points in the "Howe" speak for themselves; it is unnecessary to allude to them.

The complicated and expensive work in connection with the gold crown method becomes superfluous in presence of the Tube Tooth plan, and lastly, accident can be so readily provided for that the patient, by furnishing him with duplicate teeth, can rectify it himself.

In writing, I have not had in my mind the replacement of the molar teeth, but a little ingenuity will suggest a means of making Tube Teeth serviceable in such cases.

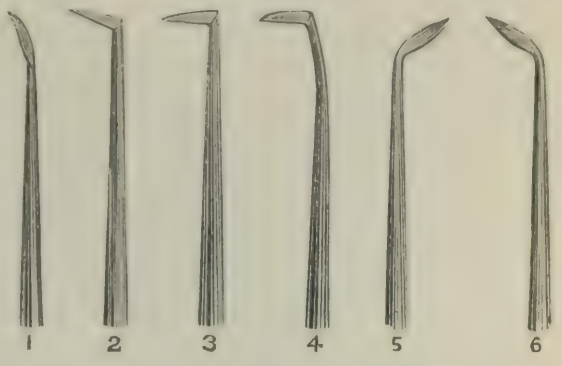
SCALERS AND ROOT TRIMMERS.

BY E. S. TALBOT, M. D., D. D. S., CHICAGO, ILL.

"A workman is known by the tools he uses," is a phrase applicable as well to the dentist as to the mechanic.

It refers not only to the construction of the instruments with reference to the work to be accomplished, but also to the condition they are in when needed. The specialty of dentistry being for the most part manipulative, requires numerous and varied instruments. Compare the dental instruments of a quarter of a century ago with those of to-day. They were characterized by large handles and ill-shaped shanks and blades. The delicate operations performed now would have been an impossibility in the days of primitive dental instruments. The more delicate the instrument, when properly shaped and tempered so as to have a sharp edge and not break, the easier and more successful will the results be. Perhaps in no other particular is this more noticeable than in the instruments used in removing tartar from the teeth. They should be well tempered, and so shaped that the operator, standing outside the oral cavity,

may carry the instrument into the mouth, and reach all parts without materially changing his position. They should also be so constructed as to accomplish the most work possible without changing for others. A set of scalers which I have used for years with great satisfaction, and which may facilitate the operations of other practitioners, I present to the readers of the INDEPENDENT PRACTITIONER. The blades are triangular, and the shanks so shaped that the greatest surface of tartar may be reached. The blade passes readily under the gum, and between the teeth the approximal surfaces of two teeth may be reached without the removal of the instrument. Then by turning the instrument to the right or left, the cutting edge will come in contact with the free surfaces and the tartar will be removed. These instruments are constructed so as to be used toward or from the gum, having three cutting edges. For the preparation of roots of teeth for the reception of gold crowns and bands, I use Nos. 1, 2, and 3 exclusively, No. 3 particularly being employed. The instruments are tempered quite hard, and with the Arkansas stone a very sharp cutting edge may be obtained. By carrying them under the gum the enamel and dentine may be shaved off quickly and without injury to the soft tissues.



AMALGAM SOLVENTS.

BY DR. W. D. MILLER.

The question of amalgam solvents raised by B. H. Teague (page 393 of this journal) is of sufficient interest to justify the presentation of certain observations which I have made in this direction. I am so situated that I have abundant opportunity to examine fillings of amalgam as well as of other materials, from almost every part of the world, and I have found one class of amalgam fillings, and only one, which invariably shows a disappearance of material from the surface, and sometimes so rapidly does the process go on

that in five or six years the teeth require refilling. These fillings all contain copper, and as far as preserving teeth is concerned, they are vastly superior to any fillings of amalgam that I have ever seen. We constantly see fillings made of the finest modern amalgams, and inserted with great care, so imperfect that a good-sized excavator may be inserted between them and the walls of the cavity, but with the class of fillings above referred to this does not occur. The fillings are absolutely black or *reddish* black, as hard as glass and very brittle. On the grinding surfaces the material disappears very rapidly, so that in a few years often only a trace of amalgam will be found at the bottom of the cavity, but in all cases it clings to the walls of the cavity as though it had been melted and poured in. I never hesitate to fill up such cavities, over the amalgam, with gold. It makes an excellent foundation, and by its antiseptic power prevents the appearance of secondary decay. The idea that the two metals would give rise to disturbances in the pulp has no foundation, either in theory or practice. The cause of the washing away of these fillings is to me unknown; the fact, however, that it takes place more rapidly on the grinding than on the approximal surfaces would seem to indicate that the friction produced by mastication may possibly be one of the factors at work in bringing about this phenomenon. It is, however, certainly not the only cause, since fillings on the approximal and buccal surfaces undergo the same change, though in a somewhat slighter degree.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FIFTH ANNUAL MEETING, HELD AT MINNEAPOLIS, MINN., AUGUST 4, 5, 6, AND 7, 1885.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

(Continued from page 486.)

WEDNESDAY AUGUST 5TH—MORNING SESSION.

Section II not being ready, section III was called; Literature and Nomenclature.

Dr. W. H. Atkinson read a paper entitled "Ripening and Ripe-

ness." It was so thoroughly condensed, being almost a succession of aphorisms and definitions, that an abstract fails to convey any clear conception of its purport.

He said—ripening is the completion of process. Production is the leading forward of something which is led; this involves conscious and sub-conscious order of movement. Consciousness is independent of time and space, until arrest of movement produces sub-consciousness manifested in the senses.

Sound mental action is regular, in accordance with purpose; unsound mental action is irregular and purposeless. Perspicacity of nomenclature demands the settlement of the question of germs, the foresteps in kingdom, class, order, genus, species, and varieties. Mass changes only have been studied; molecular changes have been ignored. The first requirement is to determine the lowest form of body capable of storing heredity. If the researches thus far made are to be relied on, the smallest corpuscles are able by fission, or by producing spores, to perpetuate their kind. But little is yet known or definitely settled regarding these foresteps. In attempting to account for the origin of the atom we become lost in the cloud mass.

Atoms are unoriginated eternities. We have to begin with an assumption or postulate as a base; given this starting point, and we are led on to ether, gas, vapor, water, colloid, and solid. Assume the atom and we reach molecules, corpuscles, tissues, organs, and systems. When the molecules are arranged in regular order, the corpuscle is produced; further measures of energy fit it for arrangement into tissue; organs are built of tissues, and systems of organs. Ether is the diffusion of atomic mass; disturbance in the tension of ether generates molecular mass.

Air supports combustion, water puts it out, and the earth is formed by precipitation of the ash and dissipation of the gas. Thus the earth, the atmosphere, and the empyrean are made to appear as the observable sphere of functional activities.

Dr. W. O. Kulp read another paper on Nomenclature. He said that in all science the nomenclature was of the first importance. Each term should convey a definite idea. In dentistry there is only a general classification; each writer has his own terms. The profession demands a uniform nomenclature.

The following is a general outline of the system of nomencla-

ture for the teeth and their surfaces, proposed by Dr. Kulp, and which has been successfully used by him in his classes:

The surfaces of the six anterior teeth, upper and lower, are labial, lingual, proximal, and occluding.

Of the bicuspids and molars—buccal, lingual, proximal and occluding.

The longitudinal surfaces (applicable to all the teeth)—grinding, middle, and cervical thirds (from cutting edge to alveolar process).

To individualize the proximal cavities, those of the central incisors are centro-proximal and latero-proximal.

Of the right and left laterals—centro-proximal and cuspo-proximal.

Of the cuspids—latero-proximal, and bicuspo-proximal.

The first bicuspids—cuspo-proximal and bicuspo-proximal, buccal cusp, and lingual cusp.

The second bicuspids—bicuspo-proximal, molo-proximal, bicuspo-fissure, buccal-cusp, and lingual-cusp.

The first upper molars—bicuspo-proximal, molo-proximal, anterior fissure, crown fissure, posterior-buccal prominence, anterior-buccal prominence, lingual prominence (the upper molars being tricuspid, as a rule).

This system being carried out to its fullest extent, every possible cavity, or any portion of each and every tooth, upper and lower, is clearly and definitely located by a single term, terse and simple.

Dr. C. W. Spalding—Said that the most severely felt want in the profession was the exact definition of terms, especially in the manipulative and mechanical portions of work. In the system here proposed, the terms are as brief and definite as possible, but we need a system of nomenclature which shall extend beyond the mere crown of a tooth, and beyond operative dentistry. As it is, all our terms are confused, the same word often expressing very different ideas on the one hand, with different words expressing the same idea on the other.

Dr. A. H. Thompson—Enquired why the terms "mesial" and "distal," brief and plain terms, now generally used, were rejected.

Dr. Kulp—Because the words mesial and distal convey either no meaning or a false one, to one who has only an ordinary primary education, as is too often the case with our students, while a term derived from the names of the teeth involved defines itself.

The term distal, implying most distant, conveys a false impression when applied to a cavity of the anterior teeth, indicating the palatal surface.

Dr. Taft—The subject of nomenclature is of the greatest interest and importance to our profession. Accuracy in conveying thought depends upon the words used; they should be definite and accurate, easily and readily apprehended. The use of language in the expression of thought is modified as the profession grows in knowledge of the language of science. Everything possible should be done for the attainment of the highest point. Discussions in associated bodies tend to the attainment of definite results. Teachers should lead in the right path. The effort of Dr. Kulp looks to the teachers in our profession. Any system generally adopted by them will come into general use in the future. The same system must be adopted, both in our institutes of learning and by those who write for the profession. The language used is often inappropriate, or conveys no definite idea. The plan proposed by Dr. Kulp is more definite and more universally applicable than anything heretofore proposed. It is sometimes feasible to use different words to avoid tautology. Masticating would be more definite than occluding. Occluding signifies "to come in contact," but all surfaces do not come in contact.

Dr. W. N. Morrison—Seven or eight years ago Drs. Judd and Dean produced a monograph on this subject, which was adopted in Chicago and St. Louis. The terms mesial and distal, when once defined and learned, looking to and looking from the median line, are simple and clear. Dr. Kulp's system is more complicated.

Dr. Taft—I am quite in favor of the terms used in the paper. Proximal is more easily understood; we should never go far beyond the apprehension of those who listen.

Dr. Morgan—The term occluding strikes me as incorrect when applied to the front teeth. When they are at rest they do not occlude. Cutting edges are not occluding surfaces.

Dr. C. W. Spalding—These points were very carefully discussed in the section. The terms grinding, masticating, and incising are each applicable in its own place, but occluding is more universally applicable; it is the only term that can be made to answer for all; it avoids multiplicity of words and is liable to fewer objections. Masticating applies to some, incising, to others; occluding will an-

swer for all. Distal and mesial have no particular advantage; they are not plain English, and not understood by patients. Cuspo-lateral is plainer than disto-lateral. Mesial applies to surfaces looking to the centre; distal means more remote, but they are arbitrary in their application.

Dr. Atkinson—Whenever we attempt to name we must take nature's standard. We must avoid all complications. Occlude is the term, *par excellence*, to stand singly, signifying simply "bringing together." The terms we now use are picked up promiscuously, an *omnium gatherum* of all time.

Dr. Taft—In the comparison between the terms, occlusion is the incipient step in mastication.

Dr. G. J. Friedrichs—At every meeting of the Association, the last system of nomenclature offered is considered the best. I see no original outcome. At Niagara our report was almost snubbed. There is only one way of arriving at a uniform basis. Let a committee, either of College Faculties or from this Association, revise by sections this or some similar paper offered, and then let it be adopted; otherwise it is all balderdash.

Dr. Sitherwood—Said that whether this system or another was adopted, it was a matter of necessity that it be one which can be readily comprehended by both patients and students.

Dr. Allport—Considered the paper open to criticism. The molars were grinding teeth; the cutting edge of the incisors was not an occluding surface. Different terms must be used if we would have accuracy.

On motion, the subject was passed.

Section IV—Operative Dentistry, was called. The acting chairman, Dr. E. T. Darby, announced one paper, "The Painless Operation," by Dr. J. A. Robinson, of Jackson, Mich., and recommended several subjects for discussion, viz :

Bridgework; discussion to be opened by Dr. E. Parmly Brown.

The Herbst Method; discussion to be opened by Dr. M. L. Rhein.

The Perry Separators and Matrices; discussion to be opened by Dr. Darby.

Half Bicuspid Crowns; discussion to be opened by Dr. Noble.

Regulating Exhalation; discussion to be opened by Dr. Southwell.

Dr. W. C. Barrett read Dr. Robinson's paper, prefacing it by saying that "Uncle Jerry" as he is affectionately styled by all

who know him well, being unable to attend, had submitted his paper to the section, which had accepted it, and designated him as the reader. Having had little opportunity to familiarize himself with the manuscript, he feared he might fail to do it justice. The following is a brief summary of the paper:

There is a universal desire to relieve or prevent pain. Tooth extraction is not desirable; it is not a blessing to the patient. We must be conservative rather than destructive. We encounter the greatest difficulty with friable teeth in anæmic conditions; palliative treatment sometimes is a necessity; an experience of fifty years has overcome many obstacles. The use of carbolized potash in preparing teeth for filling affords the most effectual relief. The brief pain occasioned by the application is nothing as compared to that of excavation, and we can give positive assurance that the latter will not hurt. If the pulp is exposed, first apply clear carbolic acid to cauterize it, then apply the remedy, and let it remain ten minutes; open with a large bur and the excavation will be painless. If there is any soreness, give the tooth rest; prevent occlusion with antagonizing teeth, which would keep up the irritation; shorten the cusps with corundum wheels. Gold is not always the best material for filling; amalgam is too often a failure; the textile foil prevents all shock from thermal changes. It has been said that it does not contain sufficient welding properties to hold a cap of gold, but I have never had a single failure with No. 6 foil welded to textile foil. Amalgam will be used for many years to come. Sinners are sometimes made better by good company; so is amalgam with textile foil; it makes a putty-like mass, composed of silver, tin, platinum, and gold. We must toil till we see the salvation of tooth-sinners; then, like Simeon of old, we can "depart in peace."

Dr. E. Parmly Brown, Flushing, L. I., opened the subject of Bridge-work. He said that, as many dentists had never seen any of this new work, he would only say that it was known at least two thousand years ago. The Independent Practitioner, some months since, gave an illustrated account of a genuine piece of bridge-work dug up in an ancient Etrurian burial place, which had doubtless been the property of an ancient princess. In laughing she must have shown a gold band, both inside and out, that completely exposed the deception. Recent improvements in modern

dentistry have done away with the gold band, leaving, however, an unsightly gap between the teeth and the gums. As another step, far in advance, he now offered bridge-work (of which he exhibited specimens), with no metal visible, inside or out, and no open space for food to lodge in, but a close fit all around, sweet, and clean, and serviceable. He described a case where the right upper molar was healthy but pulpless, a mere shell, suitable for crowning; the second bicuspid was ulcerated and useless; the first bicuspid was sound. He extracted the abscessed root and inserted the new tooth in the wound, the porcelain tooth apparently growing out of the gum. The patient was so well pleased that he wanted the other side of the mouth treated in the same manner.

Dr. Thomas—Inquired how the strain to the teeth of attachment was obviated?

Dr. Brown—There is no difference in that regard between mine and any other method.

Dr. M. L. Rhein, of New York, opened the subject of the Herbst method (which was left unfinished at Saratoga). He said that during the past year he had modified his practice somewhat; that he does not now complete his work by the Herbst method. The special advantages offered are its superiority in adaptability of gold to the walls of the cavity without retaining pits or undercuts, the avoiding of nervous shock to the patient by the malleting, and the great saving of time over any other method. The larger and more extensive the approximal cavities in molars and bicuspids, the easier and more quickly in proportion can they be filled by the Herbst method, in comparison with other methods. The only disadvantage is that the gold is not so thoroughly condensed, not as much impacted as with the mallet, therefore he has modified his method and finishes the last one-third of the work with the electric mallet, thus obtaining contour, and thoroughly condensed masticating surface. Dr. Bodecker has done the same. Insert three-fourths, or seven-eighths of the filling up to the coronal surface, with the Herbst method, then compact with the mallet and get all the density required.

Dr. Herbst himself does not acknowledge that he cannot impact as much gold as by any other method, but others have not been able to do it. Cavities must all be reduced to simple cavities, applying the matrix for the missing wall in approximal cavities, a

thin steel matrix held in place by heated shellac making the most difficult approximal cavities as simple as crown cavities in molars. Dr. Rhein exhibited specimens of work done by Dr. Herbst; a lateral in which two-thirds of the crown was built up in forty minutes, crown cavities in molars, the entire operation finished in from six to fifteen minutes, etc. Some of the work was done with tin-foil. Some of the teeth were split to show the perfect adaptation of the gold to the walls of the cavity. The gold used was a perfectly pure and very soft gold, prepared especially for this method, and used without annealing. The original is made by Wolrab, in Germany. S. S. White and Williams now offer American imitations, but which do not work like the original.

Dr. Allport—Does Dr. Herbst claim to weld tin?

Dr. Rhein—The specimens have that appearance. The Wolrab gold works like rubbing the burnisher in a roll of butter.

Dr. Darby exhibited the Perry Separators, also various forms of matrices and appliances for holding the matrix in place. He said that Dr. Perry was one of the first to follow Dr. Jarvis in his method; the new separators are more out of the way, and control the pressure more evenly. He exhibited one adjusted to the incisors, separating the central from the lateral, with the matrix in position on the distal surface. Dr. Jack's method held the matrix in place with an orange-wood wedge. The present instrument is on the principle of that used for measuring the foot, or the monkey wrench, binding the matrix between the teeth. For separating molars and bicuspids it fits the teeth as the saddle does the horse. It does not interfere with the dam, does not incommode the patient, and is out of the way of the operator. Dr. Darby also exhibited Dr. Woodward's matrix, made of steel or phosphor-bronze, or brass, or copper. If of steel, the Seth Thomas watch spring makes the best matrix, and it may be cut with the plate shears. It is made with a lobe bent back upon the masticating surface of the adjoining tooth, which prevents it from slipping up to the gum. When the space is very narrow, a wedge can be used, shaped like a knife-blade. It is less liable to break than a wooden wedge, and keeps the matrix in place while holding the teeth a little apart. Phosphor-bronze is pliable and malleable, and is readily adapted to the space, forming a matrix-holder and separator combined.

Dr. Noble, of Washington, exhibited the half-bicuspid porce-

lain crown—a Howe crown, or tooth, with four pins, and a screw in root. This modification is adapted to the outer half of a bicuspid tooth, supplying an outer cusp to the natural inner cusp and root, and doing away with the labor of building up. It is faced with amalgam or cement filling, with a gold band embracing the cervical margin, and makes a strong and useful operation. Dr. Noble also showed Dr. Donalson's most recent invention, a machine for cutting barbs on all sides of his broaches, but not in a circle.

Dr. Southwell, of Milwaukee, exhibited an original invention for throwing the breath exhaled by patients away from the operator. It consists of a curved plate resting on the upper lip, to which is adjusted a shield which receives the air from the nostrils and throws it up and off to the right or the left, and away from the operator—especially adapted to operations on the upper teeth of a catarrhal patient. Dr. Southwell also read a paper, entitled "The Health of the Dentist," as affected by the close relation with patients, especially in the matter of inhaling the hot, moist breath, loaded with noxious exhalations of the lungs and nasal passages. He said that as a man cannot exist more than two minutes without air, while he may live eight or ten days without food, the necessity for air in proportion to food was as one to seven thousand, and yet how much more we think of the food we eat than of the air we breathe! The oxygen retained is equal to the carbonic acid gas exhaled; a slight percentage of impurity may be tolerated.

In inserting large fillings we are frequently so placed below and in front of the patient that the hot breath is directly within range of our lungs; we become light-headed and dizzy from inhaling carbonic acid gas, and nervous exhaustion results. In addition to this there is the constrained position, imperfect aeration of blood, vitiated atmosphere, underfeeding, etc. These things should have our earnest consideration, especially the importance of ventilation. With this little apparatus one fruitful source of ill-health will be obviated.

Dr. A. E. Matteson, of Chicago, exhibited an appliance which had been successfully used on a boy twelve years of age, who, in playing, had accidentally fallen and knocked out the central and lateral incisors. The process was broken off, hinging at a point near the foramen of the teeth; the teeth were knocked entirely out, and were picked up from the ground. The root canals were

dressed with eucalyptus, and filled with gutta-percha. It was found very difficult to force them up into place. With the splint shown, which was cemented to the adjoining teeth, they were retained in place. The teeth were easily kept clean and sweet, and the boy never lost a meal. It proved simple and effective. He was assisted in the operation by Dr. Frank H. Gardiner. Dr. Matteson also exhibited his improved crowns. These are perfectly contoured shells, made of gold, lined with platina, giving the greatest amount of strength with least amount of material. They are readily thickened where required, as on the masticating surface, without melting the shell, which can be used as a crucible for melting the solder or gold scraps within the crown, thus securing correct articulation with the occluding teeth. Another great advantage is the ease with which a porcelain face can be inserted by cutting out the face of the shell, leaving a narrow band at the cervical margin, and inserting a platinum ring the width of the band, which rests on the end of the root, forming a shoulder, and which is soldered to the shell. For the porcelain front he uses a plain tooth, either with the pins or by grinding a dove-tailed slot, giving room for the screw-pin which is inserted in the root, the whole to be filled in with amalgam. The pin is of platinum wire, eighteen or twenty gauge, with screw-threads, the upper end bent so as to fall into the slot of the porcelain front when that is inserted. The crown is anchored to the root with amalgam, and the front cemented to the crown with oxy-phosphate. The root can be perfectly filled through the opening in the crown before the porcelain face is cemented on. A plaster cast of the adjoining teeth, and a cast of their antagonists, secure a perfect adaptation and articulation. The root must be in healthy condition, and the nerve canals filled at the apex. The end is to be ground off below the margin of the gum in front, and within an eighth of an inch of the gum on the lingual surface. The crowns, in assorted sizes, as also the gold and platina plate, and the dies and counter-dies for making the shells, can be obtained from the S. S. White Mfg. Co.

WEDNESDAY AFTERNOON SESSION

was devoted to Clinics, with Drs. Gardiner, of Chicago, Field, of Detroit, and Smith, of Minneapolis, as the managing committee.

Dr. Edmund Noyes, of Chicago, made a beautiful contour filling in a central incisor, using cohesive foil and the steel mallet.

Dr. E. Parmly Brown, using the electric mallet, made four very large contour fillings in the proximal and grinding surfaces of the first and second left superior bicuspids, and first molar.

Dr. T. T. Moore, of Columbia, S. C , made a very artistic contour filling in the anterior and palatine surfaces of the first superior right molar, also using the electric mallet.

Dr. I. C. St. John, of Minneapolis, made another gold contour filling in a proximal cavity of a central incisor, using a wooden mallet.

Dr. C. A. Timme, of Hoboken, N. J., made a large compound filling in a first left superior molar. He illustrated the Herbst method. The filling was dense and solid, but the proximal surface was not contoured, it having been previously filed flat.

Dr. M. L. Rhein, of New York, made a large compound filling in the posterior proximal and grinding surfaces of the left superior first bicuspid. He used Wolrab's German gold and the Herbst method for about two-thirds of the operation, lining the walls of the cavity at the margins with slightly annealed gold, and using the mallet to contour.

Dr. A. W. Harlan, of Chicago, treated two cases of pyorrhœa alveolaris, using Dr. Allport's new spring scalers.

Dr. J. J. R. Patrick, of Belleville, Ills., exhibited his device for striking up gold crowns, and Dr. Swasey, of Chicago, showed his apparatus for making corundum points, wheels, etc.

Dr. Matteson, of Chicago, inserted one of his porcelain front, gold and platinum crowns on a left superior lateral incisor root. The tooth presented a very natural appearance, and the operation promises to be a success.

The arrangements for the clinics were excellent, and the light all that could be desired. Chairs and other conveniences were placed in the hall, the seats being removed, and as the room was of sufficient size it gave excellent facilities for observing the different operations. At no meeting of the Association, at least for many years, have the arrangements for the clinics been so perfect, nor the attendance and interest so intense. Many new and interesting points were illustrated.

(TO BE CONTINUED.)

PENNSYLVANIA STATE DENTAL SOCIETY.

SEVENTEENTH ANNUAL SESSION, HELD AT CRESSON, JULY 28, 29, AND 30, 1885.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY WILLIAM H. TRUEMAN, PHILADELPHIA.

(Concluded from page 491.)

TUESDAY, JULY 28—EVENING SESSION.

The session was opened by the reading of a paper entitled "Teachings of Experience," by Theodore F. Chupein, D. D. S., of Philadelphia.

The Doctor, after noting the various methods and theories that had from time to time been recognized by the profession as correct practice, gave the conclusions which he had reached as the result of thirty-three years' active practice, and the reasons which had led him to approve and adopt the methods which he advocated.

He said: At one time every effort was made to preserve the first molars, but gradually the profession has been forced to recognize the fact that the saving of these teeth was not always the best that could be done. Little by little we saw that in many cases the advantage afforded the other teeth by their removal was far greater than any evil likely to result from their loss.

When the first molars show signs of decay early in life, or where the teeth are large and the jaws small, their extraction at the proper age gives the remainder of the teeth more room for development, especially favoring the bicuspids, as well as affording room for the third molars. Not only is the third molar endangered when presenting in a crowded jaw, but the distal approximal surface of the second molar is frequently injured by the close contact, in a position where it is exceedingly difficult to properly fill.

He did not give any specific age for the extraction of these teeth, nor yet advise it as a rule without exception. The time of eruption is not always the same; there are certain individual peculiarities, certain textures of teeth, as well as other considerations, that influence our judgment, and which must be considered in deciding when to extract.

When he decides upon the loss of the first molars, he endeavors to preserve them by means of temporary fillings until there are indica-

tions that the second molars are at hand and nearly ready to erupt. By extracting them at this time, the tilting of the second molars will be prevented, as they will naturally fall nearly into the space formerly occupied by the first molars. The bicuspids usually separate slightly, thereby relieving the approximal surfaces of close, hard contact, a condition so fruitful of decay.

On the other hand, should the character of the first molars be good, the jaws large, and should there exist indications that the texture of the teeth will improve as the child advances in age, he would prefer to retain them, and risk losing the third molar by extraction as soon as it is sufficiently erupted, if the condition of the denture requires it. He considered it far better to retain only twenty-eight teeth than to endeavor to save the full complement and risk all. He also referred to the many cases of facial neuralgia, so hard to diagnose, which are caused by the growth of a third molar, unable to erupt on account of the crowded condition of the jaw.

He said that he had settled down to the conviction that gutta-percha is the best material with which to fill nearly all approximal cavities in nearly all classes of teeth. up to the twentieth or twenty-fifth year. Gold may be admissible upon the masticating surfaces, but tin or amalgam can be placed there with equal if not better effect, up to the ages indicated. He noted the fact that in many cases the gutta-percha would require repeated renewals, but this is so easily done that he thought it better to submit to that rather than to a large, wearisome, and expensive operation with gold, that would fail almost invariably in the course of a few years, through recurrence of decay. The fillings can be renewed; teeth irreparably decayed cannot.

He spoke of the practice of filling cavities at the cervical margins with gutta-percha, and completing the operation with gold, amalgam, or some one of the cements, and disapproved of it. Those which he had seen had not impressed him favorably. There was a look about them as if the harder material had pressed upon the gutta-percha and caused it to bulge or protrude. It may be admissible to use it in some cases on the floor of the cavity, to prevent thermal shock, but where possible he preferred to use one of the cements, such as the oxy-chloride, or the phosphate of zinc, or one of the non-irritant class. When it is used at the cervical margin,

he recommends that it be beveled off to an extremely thin edge, so that the harder material used will completely cover it. In no case should the permanency of the filling depend upon the gutta-percha; it should be securely anchored independently of it.

He regarded with but little favor contour fillings in the bicuspids and molars made entirely with cohesive gold. When they are done on teeth narrow at the neck, or, in other words, "fan-shaped," they may be successful; in other cases decay will recur in spite of the most careful finishing and the best knuckling of gold against gold. He advocated filling the cervical portion of such cases with non-cohesive gold, or amalgam, or tin, and finishing with cohesive gold. There seems to be a therapeutic attribute in tin or amalgam not possessed by cohesive gold.

He severely condemned the practice of removing good, old-fashioned, non-cohesive gold fillings, to reinsert in their stead nice, smooth, brightly-polished, cohesive gold fillings. He had known this to be done when the old fillings were faithfully preserving the teeth in which they were placed. He regarded such practice as dictated by a spirit of egotism, looking with contempt upon the efforts of the past, rather than a spirit of honesty and justice.

He regards the zinc oxy-chloride and the zinc phosphate filling material as serviceable in lessening the time consumed in inserting large operations with gold, the larger part of the cavity being filled with the cement, and gold afterwards anchored in and built over it. They are especially useful when used in this way in devitalized teeth. Used alone, they are serviceable only upon the masticating surfaces.

He has been very successful in pulp capping in cases of recent exposure, but equally unsuccessful where there was evidence that the exposure had existed for some time. In cases where the pulp bled profusely, he was invariably successful. In cases where he found the pulp exposed after cleaning the cavity of decay, and there was little or no pain during excavation, he usually applied the arsenical paste to complete devitalization. In all cases where there was the smallest hope of success, he recommended and practiced pulp capping.

He feared that in the operation of root-filling he would be deemed an "old fogy," for despite a trial of all, or nearly all, the methods and materials recommended, he still adhered to, and practiced this

operation with the use of cotton. He preferred to use it in small pieces, about the size of the head of a large pin; used in this way it was less liable to clog.

For regulating teeth he had found the various forms of the "Coffin" spring plate invaluable, and in all cases where they could be applied he had used them exclusively.

The discussion which followed the reading of the paper was mainly upon the use of the Coffin plate in regulating.

Dr. S. H. Guilford—Stated (referring to the Coffin plate) that, in cases where the teeth lean so that the point of the spring has a tendency to slip off, he overcame the difficulty by fitting around the tooth a thin platina band, and cementing it in place with phosphate of zinc. In cases where he preferred not to carry the plate over the molars, he makes the points that pass between the teeth quite long, so that they will pass well into the inter-space. As the jaw expands, the plate has a tendency to loosen. This he corrects by warming the points and bending them down. In lower plates designed to expand the arch, he does not think it needful to cover the molars and bicuspids; there is no tendency in the plate to jump out of place, as is the case with an upper plate. That is prevented by the shape of the lingual surfaces of the lower molars. It is only necessary to let the plate pass over the crowns of the back teeth at one or two points, so as to prevent the plate pressing into the gum.

Dr. C. J. Essig—Makes use of the elasticity of vulcanized rubber to press out the anterior teeth. He makes a vulcanite plate with a stud back of the tooth to be moved, and through this he passes a screw, with the point pressing against the tooth. The object of the screw is not to move the tooth by the pressure it exerts, but simply to follow the tooth up; as the screw is tightened the rubber stud is slightly bent back, the elasticity of the stud moving the tooth. A little care is needed in constructing the plate, not to vulcanize it too hard, and not to make the stud so thick as to be rigid.

Dr. Darby—Suggested that care was needed in using the split plate in the case of young patients, and not to use much force, for fear of separating the palatal bones. He related a case where this had occurred, but fortunately it was noticed in time to prevent serious injury. The suture had opened from just inside the centrals to the soft palate.

Those who took part in the discussion had found the "Coffin"

plate very satisfactory. Some had difficulty in using the split form on account of the two halves twisting when it was pulled apart; when this has taken place the fit of the plate is materially impaired. It was suggested that it was not necessary to make a new plate when the springs needed changing; the old ones could be cut out and new ones revulcanized in the old plate.

Dr. Pierce—Suggested a simple method he had used with satisfactory results to bring out the upper centrals or laterals in young patients, when he was fortunate enough to see the irregularity just as the teeth had erupted sufficiently to slightly overlap, in cases where the upper front teeth articulated inside the lower teeth. He tied one end of a silk or gilling-twine ligature to the lower central or lateral, or included several of the teeth in a loop, and tied the other end to one of the molars of the same side. This was done on both sides of the mouth, the two ligatures forming a triangle. He then passed a thread over both of them, and by forming a knot drew them together a little distance back of the front teeth. This tightened the ligatures and drew the teeth in so far that in the course of from twenty-four to forty-eight hours the lower teeth were found articulating inside the upper ones. The ligature was then removed, the lower teeth acting upon the upper ones, gradually forcing them into position. He had used this method in a large number of cases, and found it by far the most rapid and satisfactory of any he had tried.

The examining board reported that three candidates had appeared before them, and having passed a satisfactory examination had been granted certificates of qualification.

WEDNESDAY, JULY 29—MORNING SESSION.

Dr. Louis Jack, of Philadelphia, explained at length his method of using the various forms of the matrix which he has introduced to facilitate the filling of approximal surfaces, and especially to produce contour work, with the least waste of time and labor in introducing the gold and polishing the filling. He illustrated his remarks by the use of diagrams. We did not note anything which has not been previously published, and as the illustrations are necessary to a proper understanding of his remarks, and of his method of using and adjusting the matrix and forming the filling, we have not attempted to report them. In forming the cavity, Dr.

Jack opens from the crown in operating upon the approximal superior surfaces of the molar and bicuspid teeth, cutting away largely in order to gain ready access to the cavity of decay, and to thoroughly pack the gold against the edges of the cavity when the matrix is in place. He forms well defined dovetails on each side of the cavity, so as to securely hold the filling. When the cavity is ready for filling, a horizontal or cross-section of it closely resembles a horse-shoe in shape, or perhaps more nearly the capital letter G.

Dr. Guilford—Disapproves of this, contending that by so shaping the cavity the sides are unnecessarily weakened, and liable to break away, and also, that it brings a much larger surface of the filling to the edge of the crown, where it is more exposed to the force of occlusion, which tends to tear it from its position. He prefers to cut away no more than is absolutely necessary to make the walls straight or parallel. In order to make the filling secure, he carries it farther over the crown and makes the anchorage remote from the approximal surface, where it does not weaken the tooth. A cross section of a cavity prepared as Dr. Guilford suggests will be somewhat V-shaped, the anchorage being made at the point of the V. This not only conserves the strength of the tooth, but also materially lessens the strain upon the filling, as a large part of the force of occlusion is received in a direct line with the axis of the tooth, which tends to hold it in place rather than to dislodge it.

He considered the loop matrix far preferable, as a rule, to those advocated by Dr. Jack. It is more readily applied and more readily manipulated, as it does not depend upon the adjoining tooth for support, and permits, he thinks, of more accurate and secure adjustment. In finishing approximal contour fillings he first shapes the cervical margin with a thin, delicate instrument, shaped like a straight gum lancet, and very sharp. After this he uses thin bladed files, some with the blade bent at a right angle, and finishes with polishing tape.

Dr. Darby—Finds great satisfaction in using matrices made of steel. He takes an old clock spring (he prefers the Seth Thomas make on account of their excellent quality) and rolls it down in his rolls to the thickness desired. Before rolling, he carefully anneals it so as to make it as soft as possible, to avoid injury to the rolls. Some are quite thick, others as thin as the steel can be made.

For some cases he prefers brass, or phosphor-bronze. These metals are readily swaged to any shape required, and on this account, in some cases, are preferable to steel. This form of matrix is easily made. The metal is cut to the required shape, one or more little ears being formed on the upper edge and bent at right angles, so as to rest upon the adjoining tooth to prevent the matrix from slipping into the gum, and, at the same time, to assist in holding it securely. After smoothing the edges, they are bent with the pliers so as to snugly embrace the tooth. They are so curved as to give the filling the desired contour. He is very careful to secure a close and accurate fit at the cervical edge of the cavity, so as to leave as little finishing at this point as possible. He has discarded wooden wedges to secure them in place on account of their liability to break when made thin, as they must be in many cases, and also because they often work loose and are difficult to readjust. He uses in their place thin, spring-tempered steel wedges, made to screw into a steel handle. While in the handle they are readily forced into position, and when in place the steel handle is easily unscrewed and removed. He also exhibited a neat arrangement for the same purpose, consisting of two steel wedges so arranged that by turning a nut they can be made to approach each other. After the matrix is adjusted, this is placed in position; the wedges fit between the teeth, and by turning the nut are made to hold the matrix quite firmly. If, during the operation, it should become loose, a slight movement of the nut readjusts it. The arrangement is quite small, and when in position does not seem to be in the way. The matrices, with the little ears to assist in holding them secure, are the suggestion of Dr. T. A. Woodward, of Philadelphia; the screw arrangement and the steel wedges are the invention of Dr. Darby.

Dr. W. B. Miller, of Altoona—Exhibited a simple matrix device which he has invented, that seems quite practical and will no doubt prove useful. He has fitted to each flange of a broad rubber dam clamp (Dr. Tees' pattern) a small screw with a flat head. To this is fitted various shaped matrices made with a slotted flange to rest upon the flange of the clamp, the slot passing under the head of the screw. The matrices may be used upon either side of the clamp. It is used as follows : The slot of the matrix is passed under the screw and the clamp adjusted upon the tooth. The ma-

trix is now adjusted by bending, etc., being removed and replaced if necessary. When satisfactory as to shape and position, the screw is tightened, and will hold it sufficiently firm for most plastic operations. When greater firmness is desired, a fine wire is passed around the matrix and the tooth, and the ends twisted together. This will hold it firmly enough for all operations. It has the advantage of not depending upon an adjoining tooth for support.

AFTERNOON SESSION, JULY 29.

The afternoon session was entirely taken up by the election of officers, with the following result :

President—Dr. J. W. Rhone, Bellefonte.
First Vice-President—Dr. Louis Jack, Philadelphia.
Second Vice-President—Dr. J. P. Thompson, Johnstown.
Recording Secretary—Dr. E. P. Kremer, Lebanon.
Assistant Secretary—Dr. W. B. Miller, Altoona.
Corresponding Secretary—Dr. W. H. Fundenberg, Pittsburg.
Treasurer—Dr. J. C. M. Hamilton, Tyrone.
Board of Censors—Dr. C. J. Essig, Chairman; Dr. A. Boice, Secretary; Drs. C. S. Beck, Gale French, W. H. Trueman. (The latter has since resigned.)

State Examining Board—Drs. Jack and Beck were elected to succeed Drs. Gerhart and C. N. Pierce. (It is quite probable that the election of these gentlemen may be questioned. There is a resolution of the Society which provides that "there shall be one, and only one, from the faculty of each college represented in the Society, on the Board."* The election of these gentlemen, depriving the Pennsylvania College of Dental Surgery of representation on the Board, was in direct violation of this, and accompanied by a scene of disorder, of which no society can afford to be proud.)

Cresson was selected as the next place of meeting.

EVENING SESSION, JULY 29.

Dr. William H. Trueman read a paper upon "The Importance of Accurate Impressions in Mounting Pivot Teeth and other like Operations."

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* See transactions Pennsylvania State Dental Society, 1878, page 79.

The paper reflected the doctor's experience as a mechanical dentist, and his observations in the workroom of those who adopted that branch as their calling.

He expressed surprise that, while the importance of correct impressions for all forms of artificial dentures was fully recognized, so many seemed to think that an impression by which to mount a pivot tooth was a matter of trifling moment. He stated that it was a common occurrence for a cast from a rudely taken impression in wax, on which the outline of the root was but faintly shown, to be brought to a dental laboratory with instructions to construct upon it a pivot arrangement, and that the mechanic was expected to drill the opening for the pivot with no other guide as to its position and direction than a slight depression marking the opening to the pulp canal. If the operator placed a piece of wood in the canal before the impression was taken, he seemed to think any inaccuracy in the finished work was inexcusable. He had noticed that those who worked thus carelessly usually had but little success with pivot teeth mounted on gold, and were prone to abandon that method for others less reliable and less durable.

For the operation to be a success, the root should be fully prepared, and the pivot that is to be used in the finished piece carefully fitted into the root, and in the position it is to occupy when the impression is taken. The impression should always be taken in plaster, so as to avoid the possibility of any unseen change taking place when the impression is taken from the mouth. In these cases he discarded the impression cup and built the plaster into the space over the root and around the adjoining teeth with a spatula. In this way a practically perfect impression and cast can be obtained. He called attention to the point that, while an ordinary denture is fitted to a yielding surface, a pivot plate is fitted to a hard, unyielding root, hence the necessity of greater, not less, accuracy.

The fact that these fixtures are held in place with cement that will fill any little inaccuracy under the plate does not lessen the importance of a good fit. Unless the cement is amalgam, the permanency of the operation and its cleanliness depend upon the plate fitting closely all around the edges, so as to protect the cement from wear or disintegration. The same accuracy in the model is called for in bridge work, in the so-called Richmond crowns, and

other methods of replacing lost teeth, or repairing the ravages of decay by other methods than by filling.

He thought the extra time required to obtain a good cast well spent. It is all returned by the time saved when the fixture is inserted in the mouth, while the satisfaction of a good piece of work well done continues as interest upon the investment as long as the work lasts. He thought that many dentists who do not do their own mechanical work do not appreciate the extra labor and the constant annoyance an imperfect model makes in the laboratory, neither do they realize that it is absolutely impossible to construct a well-fitting piece of work upon a defective cast.

The discussion which followed the reading of the paper brought out no points of interest.

Dr. Magill, of Erie, read a paper upon "The Law of 1876, with Supplement," in which he called attention to the difficulty of so framing a law that the objects desired can be at once accomplished. The law of 1876 was the best that could then be obtained, although defective in many points. The supplement was intended to remedy this, but had failed to do so. It was difficult to define, under the law, what really constituted a proper qualification for the practice of dentistry. He could see no way out of it but to fall in line with other States and require a diploma from a recognized dental college in all cases. He did not consider the law a failure, neither did he consider the time and labor which had been spent upon it lost. The profession had been gaining experience in a new field, and a public sentiment had been growing up in the community that he had no doubt would in time enable us to accomplish all we desired. Reforms that work real good move slow, but they move sure.

The reading of the paper was followed by a general discussion on the subject of dental law, which ended in the presentation and adoption of a resolution instructing the Committee on Legislative Action to endeavor to have the law of this State amended, so that a diploma from a dental college shall be required in all cases as a prerequisite to practice.

The Committee on Enforcement of the Dental Law made their report. There has been no case before them during the past year. Several cases have been reported, but they had learned from experience to take no action unless they were sure that reliable evidence could be secured, and this they found very difficult to obtain.

They had to depend upon those living in the immediate neighborhood of the delinquent to secure testimony, and while many were ready to make complaint to the committee, they were not so ready when asked to secure evidence upon which the committee could work. The courts require *facts*, and pay no attention to hear-say, and these facts were far more difficult to obtain than those who had no experience in the matter would suppose.

THURSDAY MORNING, JULY 30.

Dr. C. S. Beck, of Wilkesbarre, spoke at length upon "Treatment of Children's Teeth." The following is a *resumé* of his remarks:

The question has often been asked, at what age should children be brought to the dental office for examination? He usually answered it by saying about the third or fourth year. By early attention, not only is the child saved a great deal of suffering and the probability of a good and regular denture increased, but by judicious management on the part of the dentist the natural timidity of the child in the dental chair is overcome. The good effect of this may last through life. He desired to impress most earnestly the importance of always being truthful. The most important point in managing children is to secure their confidence. To this end he always selected the most simple cavities for filling during the first visit, those he was sure would give the least pain and discomfort. While he endeavored to clean and excavate as perfectly as the case demanded, if there was any degree of sensitiveness, he preferred, if necessary, to allow a little of the disintegrated dentine to remain, rather than by attempting to thoroughly prepare the cavity to give the child that intense horror of dental operations which so many patients possess, and which in many cases may be traced to the injudicious manner in which the first dentistry they had submitted to was performed. He preferred to do the best he could at the time—to preserve the teeth until the child is older and better able to bear and to appreciate the importance of the operations.

He prefers to treat abscess of the temporary teeth, rather than to bridge over the pulp chamber and drill a vent; there is something very repugnant to him in the latter operation. After cleaning the pulp chamber and canals as well as he is able, he uses a weak solution of corrosive sublimate, two grains to the ounce of

water, using it quite freely, by working it in with a lock of cotton, or a roll of bibulous paper, or by means of the syringe. He uses this on account of its potency in destroying bacteria, and has had the happiest results from its employment. In other cases he fills the pulp chamber with warm water by means of the syringe, and then applies pure carbolic acid by means of rolls of bibulous paper or cotton, and endeavors to make it reach thoroughly to all parts of the pulp chamber and canals, and to pass through the fistulous opening if one exists. By these means he thoroughly washes out the parts and renders them clean and sweet.

In cases where there is a fungus growth at the mouth of the fistula, he cuts that off with the scissors, and immediately applies carbolic acid, full strength. He does not expect by these means to cure the abscess, but he makes them far less painful and more comfortable in every way.

When the tooth is ready to fill he uses gutta-percha in the pulp chamber, preferring the base-plate variety. Sometimes he dips it into chloroform just before passing it into the cavity. The outer surface being softened, it seems to make a more perfect filling. He does not attempt to fill the canals. They are usually so minute in the molars that he allows them to take care of themselves, while the larger canals of the anterior teeth suggest caution, lest the filling be forced through the foramen.

He constantly endeavors to make the visits of his little patients as pleasant as possible. He feels that by so doing he is not only conferring upon them a present benefit, but is laying the foundation for a confidence in, and appreciation of, dental operations, that will last as long as they live.

The discussion added but little, practically, to what Dr. Beck had said.

Dr. Templeton, of Pittsburg, read a paper, entitled "Too Little of a Good Thing." (See page 517.)

The new President, Dr. J. W. Rhone, of Bellefonte, was now introduced, and, on taking the chair, appointed the following committees:

Executive Committee—Drs. W. B. Miller, C. S. Beck, C. J. Essig, W. H. Fundenberg, M. B. Lowrie.

Publication Committee—Drs. W. H. Trueman, W. B. Miller, E. P. Kremer, C. N. Pierce, E. T. Darby, S H. Guilford.

Enforcement of Dental Laws—Drs. W. E. Magill, G. L. Robb, Jos. R. C. Ward.

Committee on Legislative Action—Drs. C. N. Pierce, H. Gerhart, J. A. Todd, W. E. Magill, G. W. Klump.

Adjourned to meet at Cresson the last Tuesday of July, 1886.

Editorial.

TO JUNIOR DENTISTS.

(It is a relief occasionally to lay aside the formal and absurdly ponderous editorial "we," and to speak as if face to face with the reader. One who is engaged in practice, and who at the same time has his regular modicum of "copy" to grind out for the printers, cannot wait for inspirations, but must humor his moods, and write, like Burns, as—

"———time and chance determine;
Perhaps it may turn out a sang, perhaps turn out a sermon."

Will the readers of this journal, then, kindly indulge a little whimsicality and capriciousness in these pages, and accept the song in hope of the sermon which they may get at another time?)

I am not an old man. I indignantly denounce the miscreant who dares to insinuate such an accusation. But then I am not a young man either—worse luck. Perhaps I had better compromise with Time, and admit that I am just at the summit of existence. But that implies that henceforth my path lies down the hill of life. There may possibly be a long road ahead for me to travel, but—it is a long road that I have come over. I may have years to look forward to, but it is certain that a good many years lie behind me. What the future may yield I know not, but all these past professional years have been years of toil, of the very hardest of hard work, of fighting against discouragements in the endeavor to make a place in the world, though it has not, I am thankful to say, been *all* discouragement. There has been a wonderful deal of enjoyment connected with the past, of pleasure in my work, and of honest, soulful exultation when I felt that I had scored a point in the game of existence. Take it for all in all, my professional life has not been an unhappy one. Every sorrow has had its compensating joy, and there have been many days of rejoicing scarcely alloyed by a regretful recollection or pang. Mine has been a busy life, and for that I am devoutly thankful, for I am fully satisfied that it is only

the man whose time is occupied by some absorbing and congenial occupation who is really contented and happy. Therefore, I say I am grateful that mine has been a busy life.

Why do I start off in such a vein as this? Perhaps it is because of an association of ideas. I had occasion not long since to write an article that was retrospective in its nature, and it may be that I pick up the pen where I laid it down. Possibly my present mood takes its tone from the character of certain letters which I have lately received. My correspondence is considerable, and I find that of late years I am frequently appealed to by young dentists who ask my advice in all sorts of emergencies, as of an experienced practitioner. They seem to be rather assuming the tone of students to their tutor, or of juniors to their senior, and this causes me to enquire if I am really becoming a senior in a profession where I have so long felt myself a junior, and to rather regret the years that are passed. I have been in practice—let me see—it is now more than t-w-e-n-t-y y-e-a-r-s. Really, I *am* getting to be a senior. Well, if I must perforce be so disagreeably reminded of the flight of time, I will assume the airs of the position and demand its privileges, one of which is that of lecturing the young—of patronizing and pedagoging them.

A favorite amusement for the idle mind is to write me for my opinion on all sorts of topics. For instance, a few of the letters which I have lately received ask information as follows: Concerning the working of the Dental Law in the State of New York; advice about the inauguration of a microscopical society; how I would treat alveolar abscess; concerning the habits of the American Crow (much I know about Crow); the histological structure and probable character of a tumor, a bit of which was enclosed (nothing concerning the history of the case was sent); what is my cure for toothache; what kind of gold I would recommend for a young dentist to employ, with instructions in its use so that he can make a first-class filling.

All these enquiries are *bona fide*, and come from those who are really anxious to learn. They appeal to me as one who has had experience, and their applications cannot therefore be disregarded. Some enquiries are rather crude, and some possibly impertinent, but they are not so intended, and I take them in the spirit in which they are made and answer as best I may, remembering the time

when I, too, was groping in the dark, and endeavoring to get hold of the right end of subjects which have since become more familiar to me. Perhaps if to some of these letters I set a decent text, and preach through the columns of the INDEPENDENT PRACTITIONER, I may get a larger audience than I can secure for private letters, and possibly, too, I may be enabled to lubricate some of those exceedingly rough places where I can remember sticking in days that are gone by. There is a constant influx of young dentists into the profession; all of them have things to learn which the colleges do not teach them, and which can only be acquired by stern personal experience, or through the relation of that of others. The former way is a sure and certain one, but it is slow, and awfully expensive. Possibly the long years spent by older practitioners in climbing over certain obstacles may, if their history be given, teach the younger ones a shorter way around. The writers of the letters of which I am in frequent receipt are but types of others, therefore let my experience speak to the class, and not to a single individual.

A. writes to know what gold and what instruments he shall use to produce first-class work. My dear boy, you have the hardest lesson in life yet to learn, and that is that there is no patent on ability; that there is no short cut to excellence, and that first-class dentistry is the result of industry, and not of special methods, materials and instruments. The boy working beside the experienced man is always wanting to trade tools with him, but when the exchange is made he finds himself no better off. He thinks his special job is an unusually difficult one, but when he obtains the place of the other he finds he has gained nothing. He anathematizes his material, and thinks if he were possessed of some like that of the man whose work seems so easy, he would then be happy, but this done, his task is no easier. It is the *skill* which he lacks, and that skill is the result of long years of patient toil and practice. A good operator will work almost any foil. The tyro will find extreme difficulty in using the best. A few general principles will, perhaps, be of assistance to you, but they will not, unless you have the industry to patiently work them out to a successful termination.

The softer and less adhesive the gold, the better will be its adaptation to the walls of the cavity, because the separate layers will not cohere and bridge over minute inequalities, thus leaving empty chasms in the peripheral walls, but will slide the one upon the other

until they reach absolute contact with the tooth substance. Examine some of the soft gold fillings inserted by the old-time operators of forty years ago, before the date of cohesive foil, and which not infrequently will have been found to remain in place for all that length of time, retained only by being wedged in the cavity, and you will comprehend what is meant by perfect adaptation. Such fillings will be found to have preserved the teeth perfectly, but they have no such thing as contour. That belongs to a later age, and is produced by a totally different kind of foil. The soft gold fillings are also illy adapted for masticating surfaces. There is little or no cohesion in the mass, and therefore, when exposed to the force of mastication, they disintegrate and come out piecemeal.

If the filling, when completed, is to reach a coronal surface, the very soft or non-cohesive foil should not be chosen. You desire a hard surface and a homogeneous mass, and these qualities in a filling are only secured by gold that is more or less adhesive. But the most of our work, even though a part of it be coronal, extends to a proximal, or buccal, or lingual surface, where perfect adaptation is the first requisite. A little consideration, then, will teach you that such fillings should be commenced, and, indeed, mainly constructed of gold that has very little of adhesiveness, this to be changed for that which will produce a hard, coherent mass, when the crown or contoured portion of the work is approached. The most of our manufacturers now make foil that, in its natural state, is soft, but which when submitted to the flame of the annealing lamp becomes harder, harsher, and more adhesive, and these kinds of foil are those most used by good operators.

What, then, may be deduced from these facts? It is that the judicious dentist will so select his foil that he will have just the kind that is best adapted to the case in hand. He will not follow a rigid, unbending rule, making it his boast that he uses only cohesive or non-cohesive gold, but he will employ anything, everything that will best serve to further the end he has in view—the permanent conservation of the dental organs, with a view to their greatest usefulness.

EDITORIAL RESPONSIBILITIES.

The question of the extent to which editorial supervision of the communications of correspondents should be exercised is a vexed one. Occasionally, a generally well informed man falls into egre-

gious errors in writing on a subject with some phases of which he is not familiar. Shall the editor take the liberty of correcting such mistakes, or shall he let his correspondent exhibit his ignorance? Many writers are extremely sensitive concerning any editorial liberties with their manuscript, and resent even verbal alterations, made by one who is supposed to be an expert in the use of written language. Yet such changes are sometimes essential to explicitness. Some editors shirk all responsibility by a standing notice that the journal is not responsible for the expression of opinions by correspondents. But if any writer is allowed, without protest, to present absolutely false teachings, few readers will hold the editor entirely blameless. Upon a debatable question the utmost liberty should undoubtedly be allowed, but on vital questions of fact, what is the editorial duty?

In the September number of one of our dental journals, for instance, a correspondent is allowed to say concerning nitrous oxide: "When breathed, it produces anæsthesia by depriving the blood of oxygen, and causes sensations similar to those experienced in drowning."

This, in effect, is the declaration that the anæsthesia of nitrous oxide is nothing but asphyxia, an assertion than which nothing could be more false. Such teachings are dangerously erroneous, but does the proper "editing" of manuscript justify the correcting of such misconception? If so, then the editor becomes the arbitrary censor of all that comes under his hand, and his journal will be likely to reflect only his own opinions. If, on the other hand, his duties extend only to the correcting of grammatical, orthographical, or typographical errors, and to the general euphonistic presentation of papers, he is likely to publish an infinite deal of misconception and untruth. It is a vexed question, and the editor who escapes censure, by either writer or reader, is possessed of extraordinary tact, or is unusually fortunate.

There is another phase of the question: Shall an editor permit flagrant and known plagiarisms by his correspondents? The instances of willful cribbing from others, of the presentation as original of whole pages bodily stolen, are not infrequent. Sometimes these literary thefts are from sources probably unknown to the editor, and in such cases he is, of course, blameless.

An instance of this is found in a paper on anæsthesia, read before

the Minnesota Dental Society, and published in one of our journals. It had a strangely familiar sound, and on reference to a paper read by us before the American Dental Association, at its meeting in Boston, in 1880, and afterwards published in pamphlet form, we find an identity in thought and expression that is too complete to be the result of mere coincidence. Whole paragraphs are, word for word, the same in both articles. Let any one compare the paper as published in *The Dental Register*, with the one in the Transactions of the A. D. A. for 1880, and note the something more than similarity. As our article had the advantage of five years in its presentation, we feel that we cannot be charged with having borrowed it from Dr. Jenison. We rejoice that what we said made so deep an impression upon one mind, but we wish that for his own credit the author had made some explanation of the identity of both thought and expression.

Of course no editor can be held responsible for the presentation of a literary piracy unless he has knowledge of it, but what is he to do in cases of absolute misconception and misstatement of scientific facts?

NEW FORMS OF SCALERS.

We have received from Dr. A. W. Harlan, of Chicago, a pair of double curve, right and left scalers, that are beautifully adapted to the removal of deposits from the inside of the lower incisors, and from the proximal surfaces of the posterior teeth.

Dr. Harlan also sends copies of blank charts, showing the position and character of deposits upon the teeth of patients, which dentists are requested to fill up and return to him. It is well known that he has for some time made a special study of such cases, and practitioners may assist him, and themselves finally reap the rewards of his labors, if they will bestow a little time in registering their pyorrhœa cases, and afterwards transmit the charts to him. We presume that any one can obtain copies by addressing Dr. Harlan at Chicago.

The diseases caused by the deposits of calcareous matter upon teeth are now receiving a great deal of attention, as is evidenced by the two articles upon instruments adapted to its removal in the present number of this journal. Many dentists, feeling the need of scalers that were not to be found in the dental depots, have devised

them originally, and the whole profession will benefit by their skill. At the late meeting of the American Dental Association, Dr. Allport, of Chicago, exhibited such a set, and they were greatly admired.

THE MEDICAL CONGRESS.

A meeting of the general committee of the International Medical Congress was held in New York City, on the 3d ult., and some of the changes necessary to success were made. Whether these were sufficiently radical to secure the co-operation of the men without whose aid there cannot be anything like a full representation of the medical profession of the United States, is exceedingly problematical. Unless there can be entire harmony and unity of purpose, the proposed meeting will prove anything but a blessing. The doors of admission have been more widely opened, and there will be no attempt to exclude those who are not representatives of, or represented in, the American Medical Association. But all such are rigidly debarred from holding any position of honor or trust in the meeting.

The principal bone of contention, however, still remains, and that is, whether or not the Congress shall be exclusively managed and controlled by a single society; whether or not, it shall be in effect but an enlarged meeting of that society. This we take to be the key-note of all the contention that has been aroused. All the foreign members are agreed that this was not anticipated in the acceptance of the American invitation, that it is entirely foreign to the aims and past history of the Congress, and that it is establishing a dangerous precedent. It is greatly to be regretted that the committee, at its late meeting, did not unmistakably recede from this ground. Had this been done, no mere question of personality would have been allowed to interfere with the success of the meeting. Any exhibition of private spleen, or of personal ambition, would have been sternly frowned down by the whole profession, and all would, by the force of public opinion—the question of principle having been eliminated—be compelled either to a cordial co-operation, or to a quiet acceptance of the situation. But we fear that the essential step was not taken ; that the powerful opposition is not disarmed, and that their influence will be so felt that the meeting will either be called for Berlin, or will be almost entirely

neglected by the foreign members, without whose presence it will be a scientific failure.

The committee has receded from its decision abolishing the section of Oral and Dental Surgery, and that has been restored, and Dr. Taft again named as its chairman. If, now, the jarring elements can be harmonized, and the medical profession so united that success is possible, there is no reason why dentists should not go to work with a will to make their section as great a triumph as was that of 1881. But if the fight is to be kept up, and the meeting be only a battle-ground for warring factions, the less we have to do with it the better. In our opinion, the proper attitude of dentists, for the present, is one of expectancy—of waiting to see what will be the outcome of the whole matter.

COCAINE.

This drug has at last found its proper place in the dental pharmacopœia, and is now considered essential to every well ordered office. We no longer look to it for the accomplishment of miracles, but in the obtunding of dental tissues it plays an important part. Teeth cannot be painlessly extracted by its use, nor does it in every case make the preparation of cavities for filling a perpetual joy. But it will materially alleviate the severity of many painful operations, and no operative dentist is fulfilling his whole duty to his patients unless he has it at hand.

Many of the strictures upon its ineffectiveness have been due to weak or deteriorated preparations. The hydrochlorate very soon degenerates under ordinary circumstances. Some have purchased a four per cent. solution, and after a few days have found it utterly without virtue. More than one such solution had spoiled in our case, but we finally procured from Parke, Davis & Co., the well known manufacturing chemists, small bottles of the hydrochlorate crystals, the hydrobromate crystals, and solutions of the salicylate, five per cent., the citrate, four per cent., and the oleate, five per cent. These have never failed to produce the results that one had a right to anticipate. The oleate has proved the most generally useful, and in many cases has secured unexpected benefits. The salicylate, too, has, in some instances, been effective as an obtundent, when even the oleate had failed.

Perhaps the most pleasing results have been obtained in the removing of living pulps, and in the painless cleaning out of root canals. In one memorable instance, that of a lady, a former patient, who is now living in a distant city, and who had but one day's time for operations, a living, intensely sensitive, inflamed, exposed pulp was found. By the aid of a minute quantity of the muriate crystals, with which a nearly saturated solution was made for immediate application, the pulp was removed absolutely without pain, and the root and tooth were filled at the same sitting, nor has there since been any soreness or irritation.

We can heartily recommend the preparations of Parke, Davis & Co., and we hope that the readers of this journal will obtain some of them, and give them a thorough trial.

A DENTAL CONGRESS.

The editorial of last month, entitled "The Proposed International Dental Congress," is liable to convey a wrong impression upon one point. It was not, we believe, the intention of the mover of the resolution in the American Dental Association to suggest that a dental congress should be held at the same time and place with the proposed International Medical Congress. A meeting of the representative dentists of all nations, if it could be brought about, would undoubtedly prove an event of great importance to the profession, and might result in great good. If it cannot successfully be done through the Medical Congress, there is no reason why it might not be accomplished independently.

MISSING NUMBERS.

Owing to an unusual demand, the edition of the number of this Journal for February, 1885, is entirely exhausted. We will send valuable reprints, or any other number, or will pay cash for copies of that number. Any one having such, which he does not care to preserve, will confer a great favor by mailing them to the editor at Buffalo.

MORE DENTAL COLLEGES.

Two new colleges have been chartered for Chicago. They will be welcomed if the only emulation is to see which shall turn out the best, instead of the greatest number of students.

Current News and Opinion.

ABOUT EXPOSED DENTAL PULPS.

Recently I received a professional call from one of the oldest and most reputable members of our fraternity, who was suffering somewhat from a slight attack of pulpitis in an inferior molar. A fair sized cavity on its posterior approximal surface extended to the pulp chamber; a small point of the pulp was exposed, and the tooth was slightly sore to the touch.

After due examination I asked my friend if he wished the tooth treated with a view of saving the pulp, or would he prefer to have it devitalized and removed? "If not devitalized, I fear after-trouble," was the reply, "for although I have been a strong advocate for saving exposed pulps, and have met with some undoubted successes, yet many times where I had taken all possible pains to save them, and had flattered myself that all was right, I have afterwards had patients whose teeth I had thus treated come back to me in an agonized condition, to have the fillings removed and the teeth again treated—in the end to have the pulps removed and the root canals filled." "And has not this been the experience of most of us?" I remarked. "Undoubtedly," was the reply.

Let us all be candid and honest in this matter, and not claim credit for greater successes than we deserve, or actually gain. That, under favorable circumstances, recently exposed pulps are frequently saved, is a fact that few, if any, will deny; but where pulps are sickly, or partly congested, the chance of restoring them to health and insuring lasting peace within the pulp chamber, is a matter of very grave doubt. C. E. F.

DENTAL EDUCATION IN GREAT BRITAIN.

The September number of the *Dental Record*, of London, England, is given up mainly to information concerning dental education in Great Britain—"The Student's Number." The qualifying degree is that of L. D. S. (Licentiate of Dental Surgery), and this may be obtained from a number of different sources. The following is condensed from *The Record:*

The Professional Education of the Dental Student consists of Apprenticeship, or instruction in Mechanical Dentistry, for a period of not less than three years: Attendance on Lectures, &c., at a General Hospital and Medical School for two Winter and one Summer Sessions—eighteen months: Also attendance

at a Dental Hospital and School for two years. The attendance at the General Medical and at the Special Dental Hospitals and Schools may be carried out simultaneously, and completed in two years. This plan of work takes up the whole of the Student's time, and it is impossible for him to concurrently engage in any Mechanical or other employment.

Before commencing his Professional Education, the Dental Student must pass a Preliminary Examination in Arts. The examination most to be recommended is the matriculation of the University of London. Passing that examination will enable the student subsequently to present himself for an University degree, should he desire to do so.

Any one who commenced his professional education before the 22nd July, 1878, is exempt from the Preliminary Examination.

After passing a Preliminary Examination, the student must receive at least three years' instruction in Mechanical Dentistry under a registered Dentist. It should be distinctly understood that the Royal College of Surgeons of England consider those three years of instruction, whether in the form of serving articles, or apprenticeship to Mechanical Dentistry, or otherwise, as Professional Education; therefore, they follow the Preliminary Examination.

Having received a certificate of his Preliminary Examination, and commenced his Professional Education, either by apprenticeship or by hospital studies, it is necessary to register the same at the Medical Council Office, 299 Oxford Street, London. This must be done within fifteen days from the commencement of the pupil's professional studies. The beginning of such studies will not be recognized by any of the qualifying bodies as dating earlier than fifteen days before the time of registration.

Any one registered as a Medical Student must also register as a Dental Student, if he be such.

Having served his articles, the student may enter a General or a Dental Hospital, or both, and complete the Curriculum of at least four years of study from the date of registration; after which he is eligible to be admitted to examination for the Dental License.

Though the possession of the License in Dental Surgery is necessary for a name to be entered on the *Dentists' Register*, the student is strongly recommended to obtain some additional qualification in either Medicine or Surgery. On the other hand, though a Medical or a Surgical, other than the special Dental, qualification entitles its possessor to practice Dentistry, yet the course of study for such does not include any Dental instruction. Therefore, to be a Dentist requires a more or less complete compliance with the Dental Curriculum.

Candidates for a diploma in dental surgery must produce certificates of having been engaged during four years in professional studies, and of having received three years' instruction in mechanical dentistry from a registered practitioner.

The preliminary examination includes the following:

1. English Language, including Grammar and Composition.

2. Latin, including Grammar, Translation from specified authors, and Translation of easy passages not taken from such authors.

3. Elements of Mathematics, comprising (*a*) Arithmetic, including Vulgar and Decimal Fractions; (*b*) Algebra, including Simple Equations; (*c*) Geometry, including the first book of Euclid, with easy questions on the subject-matter of the same.

4. Elementary Mechanics of Solids and Fluids, comprising the Elements of Statics, Dynamics, and Hydrostatics.

5. One of the following optional subjects:—(*a*) Greek, (*b*) French, (*c*) German, (*d*) Italian, (*e*) any other Modern Language, (*f*) Logic, (*g*) Botany, (*h*) Zoology, (*i*) Elementary Chemistry.

The examining bodies, to grant preliminary certificates, are:

The Universities of Oxford, Cambridge, Durham, London, Edinburgh, Aberdeen, Glasgow, St. Andrew's, Dublin, Victoria University; Queen's University, of Ireland; Royal University of Ireland; Oxford and Cambridge Schools' Examination Board, with some medical and other boards and societies, and certain Indian, Colonial, and Foreign Universities and Colleges.

The examination for the Diploma in Dental Surgery by the Royal College of Surgeons of England demands the following certificates:

1. Of being twenty-one years of age.

2. Of having been engaged during four years in the acquirement of professional knowledge.

3. Of having attended, at a school or schools recognized by this College, not less than one of each of the following courses of lectures, delivered by lecturers recognized by this College, namely: Anatomy, Physiology, Surgery, Medicine, Chemistry and Materia Medica.

4. Of having attended a second winter course of lectures on Anatomy, or a course of not less than twenty lectures on the Anatomy of the Head and Neck, delivered by lecturers recognized by this College.

5. Of having performed dissections at a recognized school during not less than nine months.

6. Of having completed a course of chemical manipulation, under the superintendence of a teacher or lecturer recognized by this College.

7. Of having attended, at a recognized Hospital or Hospitals in the United Kingdom, the practice of Surgery and Clinical Lectures on Surgery during two winter sessions.

8. Of having attended, at a recognized school, two courses of lectures upon each of the following subjects, namely:—Dental Anatomy and Physiology (Human and Comparative), Dental Surgery, Dental Mechanics, and one course of lectures on Metallurgy, by lecturers recognized by this College.

9. Of having been engaged during a period of not less than three years in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner. In the cases of qualified Surgeons, evidence of a period of not less than two, instead of three years, of such instruction will be sufficient.

10. Of having attended at a recognized Dental Hospital, or in the Dental Department of a recognized General Hospital, the practice of Dental Surgery during the period of two years.

The examination by the different legally qualified bodies varies considerably, and hence the diploma of one body may be more valuable than that of another. The institutions qualified to grant the dental degrees are :

The Royal College of Surgeons, of England.
The Royal College of Surgeons, of Edinburgh.
The Faculty of Physicians and Surgeons, of Glasgow.
The Royal College of Surgeons, of Ireland.

The special Dental Schools are :

The Dental Hospital, of London.
National Dental Hospital, London.
Owen's College, and Victoria Dental Hospital, Manchester.
Queen's College, Birmingham, and Birmingham Dental Hospital.
University College, Liverpool, and Liverpool Dental Hospital.
Dental Hospital, of Exeter.
Edinburgh Dental Hospital.
Anderson's College, Dental Hospital and School, Glasgow.
Dental Hospital, of Dublin.

In addition, the following general Medical Hospitals, of London, receive dental students :

Bartholomew's Hospital; Charing Cross Hospital; Guy's Hospital; London Hospital; Middlesex Hospital; St. George's Hospital; St. Mary's Hospital; St. Thomas' Hospital; Westminster Hospital.

Candidates who were in practice before the first day of August, 1878, or those not in practice, but who had commenced their apprenticeship as dentists before the first day of August, 1875, and who are unable to furnish the Board of Examiners with the certificates of lectures and hospital attendance required by the regulations, may be admitted to examination *sine curriculo.*

CHANGE OF LOCATION.

The editorial office of the INDEPENDENT PRACTITIONER has been removed from No. 11 West Chippewa Street, to No. 208 Franklin Street. The distance is not great—only about a block—but the editor will find himself in much more pleasant quarters, in his own house, where he will be glad to welcome his personal friends and those of the journal. All editorial communications should henceforth be addressed to the new number.

CONSOLIDATION.

The *Medical Chronicle*, of Baltimore, is consolidated with the *Philadelphia Medical Times*, Dr. Rohé, the editor of the former, becoming the associate editor of the latter. He has proved himself such an accomplished writer that it would have been a serious loss to medical journalism had he retired from the field altogether.

CONNECTICUT VALLEY DENTAL SOCIETY.

The twenty-second annual meeting of the Connecticut Valley Dental Society will be held at Springfield, Mass., Thursday and Friday, November 5th and 6th.

The programme, as already arranged, includes a number of interesting papers and reports, indicating that this will be one of the instructive meetings of the year.

Those having the *blanks* which this society sent out last January are requested to *return them at once*, that a report from them may be presented at this meeting.

GEO. A. MAXFIELD,
Secretary.

SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES.

A union meeting of the Seventh and Eighth District Dental Societies of the State of New York will be held at the Genesee House, in Buffalo, October 27th and 28th, 1885. An excellent programme will be presented, including addresses by eminent men outside of dentistry, upon subjects cognate to dental practice, the exhibition of histological and pathological preparations by means of the stereopticon, etc. It is proposed to make the meeting especially one of reunion of the older dentists of Western New York. All are cordially invited to be present.

FIFTH AND SIXTH DISTRICT DENTAL SOCIETIES.

A union meeting of the Fifth and Sixth District Dental Societies, of the State of New York, will be held in the Supervisors' room, at Binghamton, on Tuesday and Wednesday, Oct. 13th and 14th, 1885. All members of the profession are cordially invited to be present.

C. J. PETERS, D. D. S.,
Sec'y Fifth Dist. Dent. Soc'y.
E. D. DOWNS, D. D. S.,
Sec'y Sixth Dist. Dent. Soc'y.

THE OHIO STATE DENTAL SOCIETY.

The first annual meeting of the Ohio State Dental Society (reorganized) will be held in Chillicothe, commencing on the last Wednesday of October, 1885.

J. R. CALLAHAN,
Secretary.

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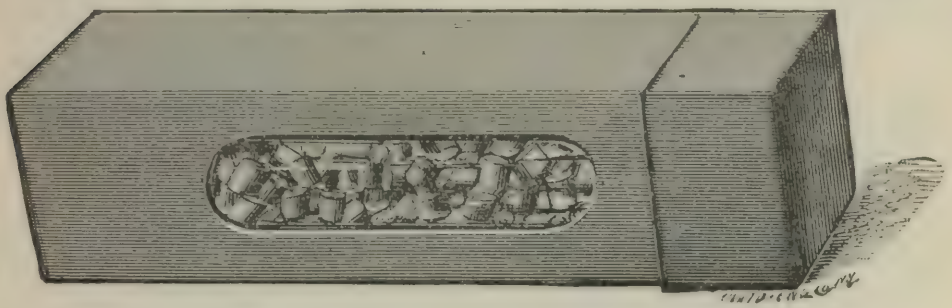
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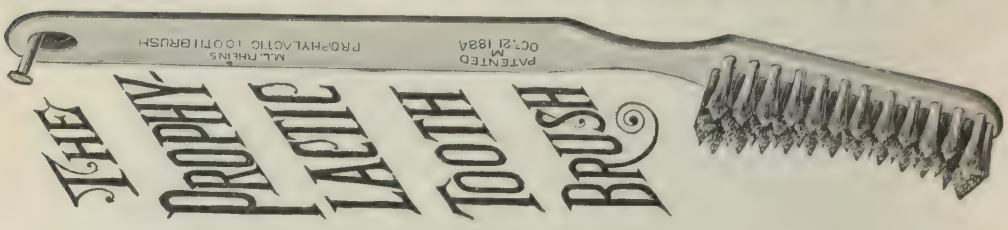
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Single brushes will be sent postpaid on receipt of 35 cents, or 3 for $1.00.

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" C. E. Brooks, " "
" E. Parmly Brown, Flushing, L. I.
" C. T. Stockwell, Springfield, Mass.
" W. Morgan, " "
" E. P. Hawes, Providence, R. I.
" E. S. Gaylord, New Haven, Conn.
" J. L. Williams, " " "
" C. A. Timme, Hoboken, N. J.
" S. Freeman, Easton, Pa.
" G. L. Parmele, Hartford, Conn.
" I. Williams. New Philadelphia, Ohio.
" J. L. Hill, Gettysburgh, Pa.
" D. D. Magill, Erie, Pa.
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THE

Independent Practitioner.

VOL. VI. NOVEMBER, 1885. No. 11.

Original Communications.

GOLD AND TIN COMBINED AS A FILLING MATERIAL.

BY A. W. HARLAN, M. D., D. D. S. CHICAGO, ILLINOIS.

READ BEFORE THE CHICAGO DENTAL SOCIETY JULY 1ST, 1884, AND PUBLISHED BY PERMISSION OF THE SOCIETY.

The attentive reader of current dental periodicals cannot have failed to observe the strong tendency on the part of contributors of late to deal with the causes of dental diseases and their appropriate treatment. This tendency has carried with it papers on dental education and legislation. Sparsely intermingling with the latter you may have noticed that a very few writers are engaged in microscopical work, endeavoring to clear up disputed or unsettled facts in dental histology. These efforts have so largely overshadowed the so-called practical subjects, that I have ventured to present to you this evening a paper devoted to a consideration of every-day operations. It will not be disputed, I think, that filling teeth, for a long time to come, will be the chief occupation of all dentists. This being admitted, you will not deem it out of place, I hope, to devote the evening to a discussion of the subject. The writer assumes that gold is, of all materials now in use, the best substance with which to fill the majority of teeth that need to be filled, but it is not practicable to use it in all cases. The reasons why are well known; however, it may be as well to recapitulate them.

First, inability on the part of the patient to pay for such fillings.

Second, lack of physical strength to endure protracted operations.

Third, the impossibility of making fillings uniformly good for the young, the aged and the weak.

Fourth, recognition of the fact that, even though such fillings were always made, they could not be considered permanent on account of the habits, age, or condition of the patient.

Fifth, the absolute folly of filling teeth with gold for the majority of children under the ages of sixteen or eighteen.

Sixth, the certainty of failure to accomplish the desired object, with certain teeth, at all ages beyond the period of childhood.

In addition to the above, every intelligent dentist will encounter cases where his judgment and experience clearly demonstrate at the time, that other materials will be better suited to the case in hand than gold. By this time many of you may be asking this question: What then would you advise us to use, in such cases, in the place of gold? My answer is yet to be made. We have amalgam, tin, Robinson's fibrous material, gutta-percha, oxy-chloride of zinc, oxy-phosphate of zinc, and one other combination of metals, which has not been largely used—gold and tin.

Beginning with amalgam, I would advise it to be used very sparingly, and then only in out-of-the-way places, or in the crowns of large molars. I do not believe that it is good practice to use it in proximal cavities of bicuspids or molars, where the teeth are closely in contact. It is permissible when the cervical wall is well covered with tin or tin and gold. It should not be used in buccal cavities alone, but only where the crown cavity extends through the buccal wall. Use as little as possible between bicuspids. It is generally safe to use amalgam on the proximal surfaces of teeth when the adjacent tooth has been lost. Never use it in a tooth which has been filled with gold, unless the fillings are in contact. In fact, use it very sparingly. It has been used beneath large gold fillings where the teeth have become carious under such fillings. It is just as easy to use tin, and I think much better.

Tin may be used on the buccal surfaces of teeth, and for filling a quarter to one-half of a cavity on the proximal surface of a molar or bicuspid, and for filling cavities in temporary teeth. It may be used in crown cavities in children's permanent molars, and pretty generally for crown cavities in third molars. It is

admissible to use it in palatal cavities of incisors, and occasionally in proximal cavities in the same teeth, when not exposed to view.

Gutta-percha may be used, as a rule, in deciduous teeth, but in the permanent teeth it cannot be said that there are many places where it can be called a permanent filling. It will disintegrate on the buccal surfaces, because few persons take proper care of their teeth. It will not stand the wear of mastication for many years. It is not as durable for repairing gold fillings as tin. I use it in incisors occasionally, and on the posterior surfaces of the second molars when the third has been extracted, and rarely elsewhere.

Oxy-chloride of zinc should only be used in pulpless teeth, as a filling material, and then it must be covered with gutta-percha, or a metallic filling. I have seen cases where, in crown cavities in molars, it had been doing good service for from five to eight years. I do not use it in deciduous teeth.

Oxy-phosphate of zinc, as a filling material, is very much like the former, as it cannot be depended upon for permanency. Its chief use is as a capping material, and also for setting artificial crowns. It may be used in the deciduous teeth, and in the first permanent molars, from the sixth to the ninth or tenth years. It can be used in the crowns of molars with or without living pulps, but it should be covered with metal. If I had to choose between oxy-phosphate and oxy-chloride of zinc for proximal cavities in incisors, I would use the former, because it is less irritating. It remains to be seen whether it is more durable in such situations than gutta-percha, or oxy-chloride of zinc. Do not pin your faith to it for a permanent filling.

Robinson's filling, it is claimed, is an excellent material for children's temporary and permanent teeth, as also for lining the cervical margins in proximal cavities, and for filling buccal cavities. My judgment tells me that tin is better, tougher and easier to work under the instrument, and not so liable to turn inky black as is Robinson's metal. I have had two years' experience with it, and have abandoned its use.

The combination of gold and tin is last, but not least, in the consideration of filling materials. Originally used by Dr. F. P. Abbot, of Berlin, the leading American dentist in that city for more than thirty years, it has stood the crucial test. While it may be true that other dentists used gold and tin previous to 1851–5, yet

their object was not the same as his; economy in the use of gold was their sole aim. Dr. Abbot, on the contrary, saw that it was not possible to save a certain class of teeth with gold, or amalgam, or tin, alone, and he deliberately commenced to fill teeth by combining gold and tin. I am not conversant with his method of introducing the combined metals, but he must have used it in ropes and cylinders. My method of preparing gold and tin, and the manner of introducing it, I will now explain.

The instruments used are six in number, with large wooden handles. They are well serrated, and are mostly wedge-shaped, or three cornered, having suitable angles, so that all classes of cavities may be reached by them.

Gold and tin is best prepared for use by folding whole or half sheets of Number 4 of each metal with a spatula on a square of spunk, or other suitable material. The gold should not be cohesive. I sometimes fold it so that there are four, eight, twelve, or sixteen thicknesses of the two metals. The gold may be on the external or internal surface, or it may be folded so that one-half of each metal is exposed to view. It does not appear to make any difference in its working quality or durability whether the gold or tin is exposed to the surface. Cylinders are made from the strips in such sizes as are desired. Ropes are made in the same manner that gold ropes are—the gold inside or out, as you choose. They should not be cut into very short pieces, as economy of time is gained by using longer ropes. Gold and tin, when used, should be introduced into cavities not entirely by the wedge principle, as inexperienced workers might cut it up by so doing. For crown and buccal cavities, one piece of rope or folded metal is all that is needed. The middle of the ribbon or rope should be grasped by the pliers, and after reaching the bottom of the cavity the ends should be worked in, one at a time, until the cavity is completely filled. Burnish and finish in the usual manner. For proximal cavities, either cylinders or ropes should be used, as the cavities are more easily and satisfactorily filled by these forms of the combined metals. No special directions are needed by soft gold workers.

I have almost wholly abandoned the use of amalgam since adopting the use of gold and tin. I can commend it for its density, the ease of its insertion, the fine finish it is capable of, its non-conducting and non-shrinkable properties, the compatibility of the combi-

nation with tooth structures, and the large variety of cavities which may be filled with it. In addition to the above, the chloride and oxide of tin are antiseptic, which is an advantage. Nitric and hydrochloric acids act readily on tin, but it is well known that neither are ever present in sufficiently large quantities to affect fillings in the teeth. Those who have not tried the combination will, I am sure, be pleased at the rapidity with which such fillings are made. Whenever the dentist finds it desirable to economize for his patient, this combination of metals may be used in buccal, crown, and proximal cavities of molars and bicuspids, generally as far forward as the posterior proximal cavity in the first bicuspid. When not exposed to view, it could be made use of even further forward towards the mesial line. The cavity should be prepared so as to be retentive, and those who have not used it will find it very easy of introduction. I have made quite a number of very large fillings in bicuspids and molars, where the cavities extended from the proximal surfaces into the crowns of such teeth. If the ribbons or ropes are of sufficient length, these fillings are capable of resisting mastication in an astonishing manner. In the majority of cases, where it is manifestly improper to use gold exclusively, gold and tin may be used as quickly as amalgam, and the operator has no fear of there being a leak afterwards. In addition to this, the filling may be finished at the same sitting. Care must be exercised in introducing such fillings, to prevent the point of the instrument from chopping up the material. A little practice out of the mouth will be found advisable by most beginners.

DENTAL NUTRITION.

BY J. R. WALKER, D. D. S., NEW ORLEANS.

There are many different ways of arriving at the same conclusion. I was very much interested in the ideas expressed in several of the papers and discussions at the Minneapolis meeting, some of which were corroborative of observations which I have been making during a number of years, others differing widely from the conclusions at which I have arrived.

The general diet of residents of New Orleans, with the cistern

water, used almost exclusively for potable purposes, constituting an environment differing considerably from that of any other portion of the country, and resulting in a greater amount and degree of softened, decalcified teeth than are to be found elsewhere, led me, many years ago, to a careful study of these conditions.

The rapid and extreme decalcification which I was able to observe in the mouths of those immigrating from sections of country where nature offers a more abundant supply of calcareous elements, and the recalcification occurring in the same teeth when visiting, for some time, their former homes, were to me exceedingly interesting facts.

The rapid changes which I thus saw taking place in tooth-substances proved to my mind, beyond a doubt, the existence of nutrient organs permeating the entire substance of the tooth. Not having the time nor the facilities to follow out the lead of this suggestion with the microscope, I could only call the attention of investigators to this as one of the most interesting fields for microscopic research, believing that they would find, in actual existence, that which analogy had taught me must of necessity be there.

Many excellent friends of mine took opposite views. Living in regions where such changes as I had seen were never found, they could scarcely believe them possible, and upheld the idea, with considerable tenacity, that a tooth, once formed, was a permanent institution, and liable to very little, if any, constitutional change thereafter.

Some, indeed, admitted a certain degree of decalcification, or "retrograde metamorphosis," and also the possibility of secondary deposits of lime-salts, producing pulp-nodules, or such as would drive the pulp back and protect it from approaching decay, and also the enlargement of the roots by external deposits. But they could not conceive of such a thing as a system of nutrient circulation throughout the body of the tooth, by which the lime-salts, held in solution in the blood, could be conveyed to all portions of the tooth-structure, hardening teeth that had become decalcified by fresh deposits of calcific elements, or, in other words, that the function of nutrition, with its double action of eliminating effete matters and supplying the place with new material, was in constant, active operation throughout the entire substance of the tooth, and that lime-salts could be so administered, designedly, as to supply

such deficiencies in tooth substance through this nutrient circulation. Or, if they admitted the existence of any such system primarily, they insisted upon its entire obliteration at maturity, the tooth being thereafter subject to no further constitutional changes. And yet, the facts almost daily witnessed in my practice proved to my mind that there must be such a nutrient system. The results were there before my eyes, results which could be accounted for by no other theory.

Where teeth were rapidly decalcified, there must be a means of carrying off the waste material; where teeth were hardened and recalcified by proper diet and proper treatment, necessarily there must be a means of bringing to all parts of the tooth the necessary elements for recalcification.

What my reason told me must be the case, the microscope has since shown to be the fact. From the *tubuli* of McQuillen, the *fibrillæ* of Cutler, down through all the more recent discoveries of Bodecker and others, the facts have forced a continual change of position; the ground has been yielded little by little, until the enamel was the only part left in which the circulatory system had not been demonstrated. And this year comes no less an authority than Prof. Frank Abbott, who, in a paper read at Minneapolis, describes "the distribution of living matter in tooth-substance, even in the interstices separating the subdivisions of the enamel rods, thus raising the enamel itself to the dignity of living tissue instead of a mere mass of calcareous elements;" and establishing completely the claim that I had put forth many years ago, that the whole tooth was living matter, and subject to continual nutrient action.

I am daily seeing in my practice the direct beneficial results of the recognition of this fact of continued nutrient action, in the benefit derived from proper regulation of diet and the administration of lime-salts, in the form of *aqua calcis*, in hardening softened, decalcified teeth.

Teeth that come to me so soft and "chalky," so deficient in calcic elements that they are only fit for temporary operations before submission to constitutional treatment, are, when my instructions are followed, so hardened in the course of a few months that they are ready for permanent gold fillings. Not by the administration of "earthy phosphates," however. I failed, as utterly as did my

friends Barrett, Abbott, and others, in obtaining any satisfactory results from the administration of the phosphates.

I wandered in the dark a long time, trying to restore the lacking phosphate of lime by the direct administration of the phosphates themselves. As Dr. Barrett said in the discussion of his paper read at Minneapolis, "the system will not take the elements from any ready-made source. It must elaborate its own pabulum."

But it is nevertheless true that the solution of lime faithfully administered—simple, plain lime-water—will be so decomposed and reorganized within the system as to furnish the elements necessary to harden and reconstruct poor, soft, chalky teeth.

An experience of more than fifteen years in this direction has never failed to produce the desired results, where instructions were followed, and this in hundreds of cases.

Proper diet is a valuable adjunct in this work, but diet alone, in these extreme cases, even the most faithful adherence to whole-wheat flour, oatmeal, etc., will not produce the results sought—i. e., arrest decalcification in time to save the teeth—without the accompanying use of lime-water.

It is next to impossible for people in ordinary situations to obtain the essentials of a perfectly healthy diet. I am glad to see, however, that the fashion is changing in this respect, and that oatmeal, brown bread, etc., are more readily obtained than formerly; but for those who cannot or will not adopt such diet, it is possible, by the administration of lime-water, to harden and save the class of teeth mentioned, and even to overcome hereditary tendencies in this direction, giving children good teeth, even under these unfavorable local surroundings.

It has become somewhat the fashion for the opponents of health-diet to fall back upon the *ipse dixit* that all human aliment must, of necessity, have passed through either the vegetable or the animal kingdom, or both. A little practical observation on the part of those visiting different sections of the country will prove the fallacy of this position. What makes the difference between the tall, angular, bony people—the prevailing type in the mountain regions of Tennessee, Kentucky, Virginia, the Carolinas, and of south-west Texas, where carbonate of lime abounds, and of north-west Texas, where gypsum is the prevailing formation—and the stout, round, corpulent people of the coast regions? A supposed

difference in functional activity will not account for it; the lowlanders appropriate as much material and acquire as much avoirdupois as do the mountaineers. The same circulatory current that removes the calcic element, producing decalcification, would bring back new supplies and recalcify and maintain the proper integrity of the tissues, if the requisite elements were there in proper proportions.

The difference is the result, not so much in the elements of the solid food they eat, as of the water they drink.

In these days of railroads and of commercial activity in the transportation of food elements, a great uniformity prevails in the solid foods of these different sections; they nearly all use the same kind of flour for bread, the same kind of beef, and so of nearly all other solids, but the water for potable uses differs widely in the different localities. In the one case it carries lime, the elements in solution of which build up those fine osseous systems, and develop solid teeth. In the other case, the rain water used is simply a solvent, and does not furnish any mineral supplies.

The fact that the osseous system depends so largely for its supply of pabulum upon the mineral elements held in solution in the water used for potable purposes, is so apparent that the character of the teeth in a given locality can be predicted from the underlying rocks and the resultant water supply, as unfailingly as the flora and the general fauna.

Another favorite assertion is that, no matter what diet may be used, the very poorest article is rich enough in lime-salts to supply all the demands of the tissues.

Now, we know that in every one hundred parts of oxygen inhaled, an excess of ninety-six parts must be supplied in order that the four parts necessary to sustain life may be utilized; that chloride of sodium, common salt, is one of the necessities of the system, though it is eliminated unchanged; that there is such a constant elimination of waste products that all the other elements of the human tissues must be supplied largely in excess of the amount actually appropriated, yet gentlemen would restrict the supply of the calcific elements to the exact quantity found in the dried tissues by actual weight, with no allowance for the proportionate excess admitted for all other elements. Is it not more probable that nutrient action and consequent change of elements

is much more rapid, consequently necessitating larger supplies than the physiological theorists have hitherto admitted, and the continual elimination of lime-salts from the system proof of this, rather than of excess of supply in the pabulum?

Those who claim that lime-salts should not be administered because they are continually eliminated, might, with as much reason, say we should breathe less, as only four parts of the one hundred of oxygen we now inhale are utilized, and ninety-six rejected as useless.

Much remodelling of many of our theories is, and will be necessary, to adapt them to facts and conditions, before we can lay down physiological axioms and say that we have the exact truth as it is in nature.

ANTICIPATING CARIES.

BY C. E. FRANCIS, D. D. S., NEW YORK.

Often has it been laughingly remarked, that if our foresight was equal to our aftersight, the bent of our action would in many instances have been very differently shaped. And how pertinent this quotation, when considering the future welfare of our *clientele*, as regards the preservation of their organs of mastication.

A wonderful faculty, indeed, that would enable one to see clearly into the "dim and shadowy future" and prognosticate with accuracy for years ahead. If this could be done with mathematical precision, many tasks of a perplexing nature would be comparatively easy to manage, or to wholly prevent, and much trouble might be saved. However, lessons gathered from experiences and observations of the past, if carefully weighed and duly considered, may prove of great service in giving character to present decisions.

That teeth in the mouths of some individuals decay more readily than in others is a fact everywhere known, and while many persons have little or no trouble in keeping them in good condition, others must give them unremitting care, or they become a source of perpetual annoyance.

Such varied conditions are due to peculiarities and circumstances. Much depends on shape, arrangement, texture or degree of density, and the physical condition of their possessors. Much also in the way of their preservation depends on proper use, methods of cleansing or degree of cleanliness, a systematic observance of hygienic laws, and by frequent examination, with good care and treatment at the hands of the intelligent dentist.

A crowded condition of the dental arch favors proximal decay, the most vulnerable point being the point of enamel contact, a fact which no practitioner of extended experience has failed to observe. Extraneous accumulations that work their way into the dental interstices are retained in their cervical pockets, and when in a state of fermentation cause mischief to the enamel walls. The poorer the quality of enamel structure, the greater is the danger to be apprehended from agents of decalcification. Teeth of a low-toned or impoverished character, if crowded, are almost always sure to be attacked by proximal decay, and especially is this the case with the superior bicuspids, and with incisors where overlapping occurs.

How to obtain relief where teeth are badly massed together is, in many instances, an exceedingly perplexing undertaking, and a great diversity of opinion exists as to methods of securing it. With young patients, space is often obtained by enlarging the dental arch, by means of regulating appliances. The "Coffin" and "Talbot" devices are valuable aids in accomplishing this result. Room is also frequently secured by extracting one or more teeth, according to requirements. This practice, as a means of anticipating or preventing the formation of caries has, for half a century or more, been earnestly recommended and largely adopted by many prominent members of our calling in this and other countries, and continues to be the practice of a great number of our fraternity who have, with sorrow, witnessed the destruction of many fine dentures which irregular and crowded conditions have tended to hasten. No one will dispute the assertion that the timely removal of a single tooth has, in innumerable instances, been the means of saving several from destruction. Such pioneers of the dental art as Drs. Parmly, Foster, Dunning, and others who practiced in New York, men of excellent professional record, were forced to the conclusion that twenty-eight sound, substantial teeth, requiring little or no care on the part of the dentist, were infinitely better and far

more lasting than thirty-two defective ones that demanded constant care, and which were destined to become loaded with metallic fillings or to crumble away—perhaps *both*, in the end. Our esteemed friend, Dr. Clowes, of New York, whose efforts to save human teeth have been crowned with remarkable success, and whose valuable suggestions are based upon a long career of active practice and careful observation, has advocated the same doctrine, which he considers *sound*. Many times, at society gatherings, has he declared that "enamel contact is always a menace of danger," and in order to give relief to a crowded arch he would "weed out" the sickly occupants, and thus secure room and health for the other members of the dental community.

On the other hand, many excellent dentists prefer cutting away the proximal surfaces of the teeth, rather than to obtain space by extraction. With adult teeth of good texture, this practice, in many cases seems to have answered the purpose intended, and has proved the salvation of teeth thus treated. Thousands of dentures have been separated by means of files, disks, and chisels, to save them from decay, and in some instances, although reduced to unsightly slabs, have for years firmly maintained their integrity, as if in utter defiance of the agents of decalcification, or the elements of decay.

Who has not beheld such cases, and plenty of them? Teeth standing alone, unless previously tainted, if treated with any sort of care seldom decay, and mere fragments that have been reduced by artificial means have remained in a state of health where, even in the same mouths, other teeth crowding each other have succumbed to the ravages of disease.

Grains of wisdom may often be gathered by acquainting ourselves with the experiences of others, and in witnessing the results of their practice, and in efforts to prevent proximal decay some points thus gained are worth considering.

As a rule, where the dental arch is unduly contracted, the teeth irregular or crowded, much benefit may be derived by expanding the arch with mechanical devices. This will sometimes accomplish the object desired. If, in irregular and crowded conditions, where the teeth seem impoverished, the enamel rough or abounding in pits, and showing unmistakable evidences of proximal failure, it is good practice to remove either the sixth-year molar or one of the

bicuspids on either side of one or both arches, according to circumstances.

Where extraction is the resort for anticipating caries, it should be done sufficiently early in life to obtain the space required. Every year's delay, after the eruption of the second molars, lessens the chances of gain by this means.

One of the principal objections to the removal of the above named teeth is, that a part of the masticating surface is lost thereby. If, however, the loss of this little surface for a brief period of time (or until the spaces close up) will insure a much larger masticating surface for a life-time, is it not simply making a comparatively small sacrifice to gain a permanent benefit? Mastication is no less important to the health and comfort of a mortal as the years of life's march roll on.

If space is to be obtained by cutting away the tooth-structure, it is important to consider the nature of the material to be thus treated, and to do it *artistically*. Compact and yellow teeth in the mouth of an adult will bear the effects of cutting better than the more delicate and pearly-looking ones. Children's teeth are less benefited by having them filed apart, and the expediency of thus treating them is (as a rule) one of serious doubt.

The main objections to cutting away the proximal surfaces are, that their contour is destroyed, and the spaces thus formed are productive of annoyance in masticating food, but it is argued that even this is better than to have them *decay* away.

We confess that we greatly dislike to see teeth mutilated by having their surfaces ground away, and we dislike also to see teeth breaking down from the effects of caries.

But, in all conditions where crowding occurs, *good judgment* is a great requisite when considering what to advise; and good judgment comes only by careful study and close observation. In any event, under all circumstances, a condition of cleanliness within the oral cavity is a most important consideration. Unfortunately, however, so small a proportion of human mortals manage to keep their teeth free from mischievous deposits, that little reliance can be placed on *their* efforts to prevent approximal decay.

Note.—As this article treats simply of the "anticipation" of caries, the saving of teeth by means of fillings is not herein referred to.

THE ANNUAL DINNER OF THE AMERICAN DENTAL SOCIETY OF EUROPE.

BY A MEMBER.

The primary object of the American Dental Society of Europe, as of every other dental organization aspiring to the name of a scientific society, is the promotion, advancement, and dissemination of those things which tend to increase the excellence and standing of the profession. At the same time, the privilege of becoming acquainted with members of the profession, who, on account of the great distances which separate them, would otherwise remain strangers, is one which is fully appreciated.

It has long been the custom at the annual meeting of this Society to set aside one afternoon or evening to a purely social meeting, and this part of the programme, with the accompanying dinner, has become as permanent as the discussions themselves, and is regarded as absolutely essential to the success of the meeting.

We leave it for others to judge as to the success of the late meeting from a scientific point of view; the social and gastronomical part of the programme were, we think, all that could be desired. Of course the regular toasts came on in due time. Dr. Cohen welcomed the guests. Dr. Miller eulogized the Kaiser and America, the "Home of Dentistry," and Dr. Sachs remembered the absent members; he "saw a great many who were not there."

But the American Dental Society of Europe counts among its members a "funny man," who never fails to keep the ball rolling and everybody laughing. When Dr. Patton gets up, those who know him prepare to laugh. Dr. Patton toasted the A. D. S. E. somewhat as follows :

Mr. President and Gentlemen :

I am pleased to be *able* to rise at this late hour of the festivities, to propose a toast which cannot and should not be forgotten. I might say, as is usual under similar circumstances, "unaccustomed as I am to public speaking" etc., but a morbid originality prevents me. I say I am pleased to be *able* to rise on this occasion; whether I may be able to rise *to* it I know not. Gentlemen, the deeds and achievements of the Anglo-Saxon race, so memorable in history, exert, and will ever exert, that influence on their descendants which

causes them to be the leading spirits in all great enterprises. This spirit has led them to be the germs of civilization wherever they could get a foothold, and each continent, yes, the old and new worlds are to-day the proofs of Anglo-Saxon superiority. Our own country, particularly, has to thank these enterprising spirits for its own noble developments. It is an alcoholic success, but, gentlemen, it is a mistake to think that the plucky achievements of our forefathers are not imitated in our own so-called prosaic times; they exist in even more developed exertion, and are merely lost sight of in the overwhelming preponderance of innumerable great enterprises, emanating from scientific advancement.

The bold crusaders of old, armed merely with the weapons of their knightly panoply and calling, rode bravely forth on their long pilgrimages to the East, imbued with the love of adventure, and, upheld by the strong tenets of their faith, fought their way through Saracenic hordes to the shrine of their desires, to return later (when so fortunate) with a retinue, and laden with the spoils of victory gained by their indomitable courage and strong arms.

But, as I said, in these prosaic times we have also our heroes, who fearlessly journey to the East, single-handed, to seek glory and reap rewards in their calling. Yea, have we not the Knights of the Excavator, armed with the weapons of their calling and engines of destruction—many easily carried in their trouser pockets—who gallantly ship themselves on Cunard, or even other lines, leave the tilling of the ground of America, and, landing on the shores of this continent, singly attack the bacterian hordes of Miller, force them from their most impregnable strong-holds, or enclose them away in exile forever and a day? I tell you, gentlemen, when one of this sort gets a few micrococci by the back hair, the shock alone settles them, and after years of stout warfare against the *Germanic* Funge Orali, return (also when fortunate) laden with the spoils of victory, carried as their weapons intrinsically in their trousers or other hidden receptacles.

Here, gentlemen, sits to-night a remnant of these bold bactereers and destroying angels, who destroy but to preserve. Gentlemen, I thank you for your presence, and congratulate you on the discriminating election of officers for the campaign of the ensuing year; you could not have done better, for there were no others left, but I can assure you that under the able guidance of your newly-chosen

President, Dr. Cohen, who, in his turn, will be guided by the Vice-President (who will attend particularly to the vicious propensities of the members), no pains will be spared to insure the success of the next campaign.

As you know, we do not think much of ourselves, and I know you all feel as we do, so that buoyant hope will be emblazoned on our banner, and trusting that a strong muster of the body-guard will support us next year in Frankfurt, I call on you, gentlemen, to raise your glasses and join with me in an enthusiastic and energetic Hip! Hip! Hurrah! to the prosperity of the American Dental Society of Europe.

HOSPITAL OF ORAL SURGERY, PHILADELPHIA.

CLINIC OF PROF. GARRETSON.

Reported for the Independent Practitioner by Robert S. Ivy, D. D. S.

EPULO-FIBROMA IN A PREGNANT WOMAN—OPERATION.

The patient, aged thirty-five, had been pregnant six months. The growth, for the treatment of which the woman had presented herself, was about the size of a hickory nut and occupied a position upon the right side of the upper jaw, enveloping a portion of the crowns of the lateral incisor, cuspid and bicuspid teeth. Attention was particularly called to a distinction to be recognized between the proliferations of gingivitis as occasionally met with in child-bearing women, and true neoplasms. These distinctions were clinically discussed, and a diagnosis of the case arrived at by exclusion, the tumor being pronounced an epulo-fibroma. The rapid development of the growth and the known tendency of the condition to malignant degeneration decided Professor Garretson to take the risks of radical extirpation, and accordingly the patient was at once etherized, and the tumor, teeth, and involved portion of the bone removed in a common section made by the circular saw.

It is the experience of the clinic that sections of the jaw bones made by a firm and rapidly revolving circular saw give little shock. In the present instance the patient had no occasion to go to bed, and after two or three days went about her household duties as usual. Prof. Garretson held that the risks of an abortion were less than the risks of waiting on the neoplasm.

OSTEO-SARCOMA. REMOVAL OF UPPER JAW, OF THE TURBINATED, NASAL AND LACHRYMAL BONES, AND A PORTION OF THE ETHMOID.

This was an operation of uncommon severity, and is not known to the writer as having ever before been practiced. The operation performed before the class was a success to such an uncommon extent, that the man was permitted to leave the ward after fourteen days, to return to his home and the care of the family physician.

Uncovering of the parts involved was secured by the use of two incisions, the first beginning over the region of the frontal sinus and descending down along the side of the nose until reaching the lip, through the median line of which it passed; the second commenced at the inner canthus of the eye and passed outward to the malar bone. Flaps, thus secured, were raised from the nasal and jaw regions.

The removal of the bones involved was effected by the use of revolving saws, burs and lion forceps. As the maxilla was concerned, its ablation was secured by cutting the malo-maxillary, the naso-maxillary, the palato-maxillary, and spheno-maxillary articulations, and then lifting it from its bed by means of lion forceps.

The hemorrhage, which was necessarily very profuse, was controlled by use of ligatures and compresses. The cavity formed by the removal of the diseased parts was subsequently packed with phenated sponges, having strong ligatures attached to permit of withdrawal. A succeeding step was to replace the flap, its edges being held in apposition by sutures, the incision at the lip being drawn together by pins, after the manner of a hare-lip operation. A section of the tumor removed, when examined under the microscope, was seen to contain spindle-shaped and giant cells, the latter resembling osteoclasts, both of these being characteristic of the myeloid sarcoma. Three days after the operation, the pins holding the lip together and many of the stitches approximating the wound were removed, and the patient was able to walk about the ward unaided. One week later he was shown to the class, all the stitches having been taken away, the wound having absolutely united by first intention, while very slight disfigurement was observable. The eye remained uninjured, and had all its natural movements.

OSTEO-FIBROMA. DISARTICULATION OF THE LOWER JAW.

This was another of the many extensive performances practiced at the oral clinic. Patient, a vigorous man, sanguine temperament, aged thirty-five. The growth was of two years' standing, with the general health unimpaired. The deformity was very great, the tumor measuring four inches in circumference. The operation was commenced, like the former, with great regard to the extent of anæsthesia produced, Professor Garretson asserting that it needed care alone in this direction to render unnecessary the preliminary performance of tracheotomy, as recommended and practiced in German surgery; "he had performed the operation too often," he said, "to fear drowning a patient in his own blood."

The disarticulation was commenced by an incision beginning in a division of the lower lip at the exact median line, and which was carried around and beneath the jaw until it terminated at the ear. The flap thus relieved was dissected from the face of the tumor, and the bone being divided, by means of a circular saw, at the symphysis, was turned out and disarticulated. To avoid wounding the internal carotid and internal maxillary arteries, the professor used the knife very little about the region of the head of the bone, depending here upon the aid of a chisel-shaped gouge. A stout tenotome was employed to cut away the attachments of the pterygoid and temporal muscles.

Dr. Garretson is ably seconded in all his clinical operations by his chief of clinic, Dr. Cryer, the two having so long operated together as to appreciate urgent and quick wants, without the necessity for speaking a word.

ENGLISH TUBE TEETH.

BY DR. LAWRENCE VANDERPANT, ORANGE, N. J.

Since writing my article on the above subject, I have considered that it may be deficient in some minute details that will detract from the practical value I desired it should have, but as the use of such teeth is so well known in Europe I did not at the time deem such particularity essential.

The initial process in mounting these teeth is much the same as with the American, previous to backing. They are roughly fitted,

usually in pairs. The second step is the most important, "pickling," or securing the proper position of the pin, which is thus effected. The Platina tube of the tooth is cleaned by an appropriate tool called a "Tube File," and counter-sunk at its base. (A convenient instrument is made for this purpose by grinding a four-surfaced point on the end of an old rat-tail file.) The tooth is secured to the plate by a cement composed of two parts fiddler's resin and one part beeswax. The position of the pin is given by pointing the wire to be used, and placing thereon the smallest quantity of color (vermilion and oil.) By passing the wire through the tube of the tooth on to the plate, the exact center of the tube is given, and the proper position of the pin. After removing the tooth and cement, make an indentation with an improvised point in the colored spot, and drill a hole slightly smaller than the wire to be used; cut out from the inside of the plate the debris from the drill or broach (a useful gouge for this purpose can be home-made out of a half-round steel wire, three-eighths of an inch wide, ground to a rather bluff cutting edge), cut off an ample length of wire for the pin, file the end to be soldered to the plate square, and insert it firmly in the proper position in the hole already made, so that it will not require subsequent bending. The object of forming a square point is that the solder may have a substantial attachment.

Pliers are sold especially for this work, but by filing or grinding a longitudinal groove in an ordinary pair, all that is necessary is obtained. I would here remark that for this, or for crown, or clasp fitting work, I always teach my pupils to use pliers rather too large, than the reverse. Much time is lost and vexation caused by the wriggling and slipping of improper tools.

The pin or pins must now be soldered, for which the smallest possible quantity of solder and borax paint is all that is needed. In firing, pay special attention to the plate, and draw the solder from underneath as far as possible. Avoid the pins, otherwise they will "sweat," and endless trouble ensue. An inefficient solderer might paint two-thirds of the pin with "Whiting Paint," which will prevent their melting or "sweating." In like manner all the teeth are mounted and the excess of pin cut out from the inside of the plate.

After all the teeth have been perfectly fitted, which may be done most accurately by painting the plate adjacent to the pin with the

oil and vermilion, place the tooth thereon, which, on removal, will have the exact mark of color of the portion requiring grinding.

The plate polished, the teeth boiled in soda and water to remove grease, etc., the tubes cleaned by passing a string through them, and the whole of the work perfectly dry, the teeth are fastened to the plate and pins by means of sulphur. Some care is necessary in effecting this, which is done by heating the work carefully over an alcohol or Bunsen burner, and placing, with a pair of foil carriers or jeweler's tweezers, a piece of broken sulphur about twice as large as a pin-head, which will flow through the tube and hermetically seal the tooth and plate. The sulphur may also be applied by making a piece of iron or other wire hot, and taking up a lump the proper size thereon. It is obvious that some care and dexterity is requisite in this, the final act, for a little injudicious application of heat will ignite the cement, and the whole of the work will be badly disfigured, and perhaps some of the teeth cracked. Ordinary care and foresight will, however, prevent such disasters. The plate should be grasped with the pliers in the left hand, and heated with a small, well-regulated flame, from the centre of the plate, about where the air-chamber usually is, and if not a particle of sulphur is allowed to drop on to the plate, a satisfactory result will be obtained. The final finish is to be effected by grinding out with an extra fine small stone the excess of the pin, when a little polishing with the fine brush wheel will remove the tarnish from the plate. Subsequent removal of the teeth, if necessary, is effected by heat in the above-described manner. The only difficulty that I apprehend a novice would encounter would be in soldering the pins, but by attention to instructions herein, and a little practice, this will be easily surmounted.

In the application of these teeth to crown or pivot work, facility and greater accuracy is obtained by cutting a screw upon the end of the pin to be inserted in the root. Two or three turns will secure it firmly in position, when it can be bent to fit the requirements of the tube-tooth, and amalgam easily be plugged around it.

THE CERVICAL EDGE.

BY J. SMITH DODGE, JR., M. D., D. D. S.

May it not be that the mysterious tendency to decay at the cervical border of fillings is largely due to defective trimming? Since I formed the habit of testing every proximal filling by passing floss silk between the gum and the neck, and drawing it along the tooth

towards the free edge, I have been continually surprised to find how difficult it is to obtain perfect smoothness at the cervical border. Now any abrupt projection of the filling at this part will promote decay in two ways. It will make impossible the perfect removal of fibrous food, and it will produce that acid secretion from the mucous surface which has been shown to follow prolonged irritation of the gums.

The conjecture that this is a frequent cause of cervical decay is strengthened by considering the difference of filling materials in this respect. Did anybody ever see recurrent cervical decay beside a gutta-percha filling? Certainly, very seldom; while fillings of oxy-chloride or phosphate permit it readily. Now gutta-percha is so easily trimmed with a warm spatula that it is almost certainly well finished at this point. And if it is not, gutta-percha has no irritating effect on the gum, and is so flexible that it will much less firmly retain foreign particles, in both which respects the mineral fillings named are greatly different. Then again, consider the well-recognized contrast between fillings of soft foil and those of cohesive gold. It was very rare that one found cervical decay by a well-made soft foil filling, while it has from the first been the besetting sin of cohesive gold. May it not be because the projecting mass of soft foil yields so readily to the customary stroke of the flat burnisher between the teeth, that no abrupt projection is left? It is certain that since the matter took this shape in my mind (several years ago), my gold fillings have been almost exempt from cervical failure.

But perhaps the strongest confirmation is found in teeth filled with amalgam. How many teeth have I seen, in the mouth or out, with large amalgam fillings sharply projecting where the cervical wall had been, but flanked on that side by a great and fatal chasm. Of course, such an edge of amalgam, once well hardened, presents exactly the conditions for retaining food and for constantly irritating the gum. Any dentist who investigates this for the first time will be surprised to find how naturally, almost inevitably, a filling finished with spatulas projects at the cervical margin. But since I adopted the use of silk for trimming next the gum, my amalgam fillings have in hardly an instance permitted secondary cervical decay.

My object is not to present this as the complete explanation of cervical failure, but to suggest that this may be the reason why many fillings, otherwise thoroughly good, prove insufficient at this critical point.

RELATION OF HYGIENE TO PRACTICAL DENTISTRY.

BY C. E. H. PHILLIPS, D. D. S., NEW YORK.

The great advance made in recent years in treating diseases of the mouth is certainly encouraging, and though excellent results are by no means uncommon, we should not rest here. Patients must be so instructed as to aid us in our endeavors, and not until they are impressed with the importance of the hygienic care of the mouth is our duty fully performed. The unwarrantable neglect of many patients in this regard is astonishing.

The physician, who by careful treatment and strict enforcement of sanitary laws has stamped out from a family or community the scourge of malignant fever, with precautionary instructions as to ventilation, diet and hygiene, for the protection of its other members, would at least feel discouraged, and justly so, should a recurrence of the disease result from gross neglect of sanitary conditions, or carelessness as to instructions given.

How very often is the dental practitioner subjected to like discouragement. Having corrected diseased conditions in the oral cavity, carefully cut out all carious dentine and nicely filled the cavities, removed accumulated calculous and mucous stains from the teeth and polished their surfaces, resulting not only in a pleasing appearance, but to the operator the consciousness of having performed saving work and aided the general health, and after faithful instruction as to thorough and careful use of the brush, with a good dentifrice, at proper periods, the employment of waxed floss silk and quill toothpick, is it to be wondered at if a feeling very akin to disgust is experienced, if in a few months or a year the patient again presents himself with tartar already forming in quantities, the teeth yellow from mucous attachment, the gums soft and spongy, ready to ooze blood from their gingival edges upon the slightest touch, all evidencing little care or use of the brush, or, possibly, its total disuse and general disregard to common hygienic requirements?

There is no question that the great essential to a healthy mouth, wholesome saliva, and pure breath, is *cleanliness*. Not until the dentist is able to force upon his patients the necessity of *thorough* cleanliness of the mouth at all times, and has their assistance to this end, shall we save teeth and keep the surrounding tissues in a state of health, and not until then should we rest satisfied.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FIFTH ANNUAL MEETING, HELD AT MINNEAPOLIS, MINN., AUGUST 4, 5, 6, AND 7, 1885.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

(Continued from page 538.)

WEDNESDAY AUGUST 5TH—EVENING SESSION.

Section V—Anatomy, Histology, and Microscopy—was called. Dr. Frank Abbott, of New York, read a paper entitled "Studies of the Pathology of Enamel of the Human Teeth, with special reference to the Etiology of Caries."

The essayist first described the micro-stereopticon of Stricker, of Vienna, an instrument by which the field of an ordinary slide, magnified 12,000 diameters, is projected upon a screen so that a thousand persons can study it at once. Theories regarding tooth-structure are thus proved or disproved. Dr. Abbott said that he expected to receive one of these instruments in a few weeks, for the further prosecution of his researches in this direction. He also said that he was indebted to his friend and teacher, Carl Heitzman, for the very fine micro-photographic illustrations of his present paper, by which he was able to prove the truth of the positions taken.

He spoke of the very great importance of the study of the Pathology and Etiology of Caries. That there was a marked difference, not only in individuals, but also in races, in the liability of teeth to decay. That civilization had been accused of being a prominent factor of causation, but that this would not explain the rapidly growing tendency towards this disease under all circumstances. That there must be an anatomical sub-stratum, aside from acquired or local causes, the latter being mere auxiliary agents fostering more remote causes. He had examined a large number of specimens, ground into thin slabs, with the soft parts, their living matter, carefully preserved, the results being highly satisfactory in explaining the tendency to decay as due to deficiency in anatomical structure. Before entering into the description of anomalies, he described the structure of normal enamel and its relations to dentine, as discov-

ered by Bodecker, the connection between the dentinal and enamel fibres, the distribution of living matter in tooth-substance, even in the interstices separating the minute subdivisions of the enamel rods, thus raising the enamel to the dignity of living tissue, instead of a mere deposit of calcareous elements. He said the dentinal canaliculi upon entering the enamel often became enlarged in pear-shaped cavities, containing protoplasm, which was in direct connection with the termination of the dentinal fibres, and on the periphery with the fibres of living matter of the enamel, these enlargements being more regular in the teeth of young persons.

The first plate represented a temporary molar, with a protrusion of dentine into the enamel, with a fluted surface, the centre of the protrusion occupied by protoplasmic formation, the enamel nearest the protrusion destitute of prisms, the zone above the protrusion but slightly brownish, while the prisms of the enamel exhibited a very distinct brown pigmentation.

The second plate represented a permanent canine with a pear-shaped or conical protuberance without distinct boundary on the buccal surface, occupying nearly one-half the enamel, the adjacent enamel showing indistinct rods, but occupied by brownish, globular fields, resembling the interglobular spaces of dentine. The rods were slightly pigmented, and more wavy than normal. There were no interglobular spaces in the dentine of this tooth.

The third plate was a diagram showing the stratification of enamel layers varying in width, the broadest portion always corresponding to the cusps, the narrowest to the neck of the tooth, the enamel rods of the cusp-layers invariably vertical to the surface, while those of the neck-layers may be parallel to the surface, this construction sometimes varying at the outer periphery of the enamel. Higher powers of the microscope show that the lines of stratification do not alter the general course of the enamel prisms, an exception occurring only at the peripheral portions of enamel occupied by the tapering ends of the neck-layers, which may exhibit enamel rods almost parallel with the surface of the enamel, while at the outer periphery of the cusp-layers the enamel rods would invariably be more or less vertical.

The stratification of the enamel is of the utmost importance for the understanding of pigmentation and granulation, these both corresponding with the general strata of the enamel, showing in a

longitudinal section a fan-like appearance. The stratification of this tissue bears close relation to the history of its development. The first enamel cap of temporary teeth is broadest in the direction of the cusp, and tapering towards the future neck, subsequent layers forming on the plan of the first.

Illness of the mother, before delivery, or of the infant after delivery, might cause an interruption in its construction, leading to stratification, pigmentation, and granulation, these conditions invariably involving a deficient deposition of lime-salts.

Figure four illustrated the irregular course of pigmented enamel rods. In normal enamel, longitudinal sections exhibit slightly wavy rods, interlaced by small bundles in a transverse direction, the curvature becoming gradually less, till it is nearly straight, close to the surface. Where there are deviations from the rule, they lose all regularity, oblique and longitudinal blending, as in the graining of lignum-vitæ. In such cases the curvature of the rods may remain marked up to the surface, showing groups of transverse sections at the outer surface, perhaps on one portion only, the rest of the enamel being normal. With this curly appearance pigmentation is combined, and the interstices between the rods are wider than normal, all indicating deficient calcification. The dentine is also freely supplied with interglobular spaces, also another sign of deficient calcification. The friability of such enamel is so great that it is extremely difficult to obtain an unbroken slab. With low powers of the microscope the broken ends of the enamel rods look as if corroded. The enamel rods are unusually narrow, the interstices correspondingly wide, and their tenants—the enamel fibres—very prominent. The reticulum near the inter-zonal layer is also very prominent. These conditions may occur both in temporary and in permanent teeth, and may be combined with pigmentation.

Another result of deficient calcification is seen in the congenital white or yellow spots, which, if broken into, are found of the consistency of chalk. This is miscalled "white decay," but is a congenital defect due to deficient calcification, and is closely allied to the rows of pits, with no enamel in the bottom of the depressions. These are also congenital and due to the same cause. Some portions, or all of the crown, may be covered by a brown or yellow substance, which is not enamel, but which is soft and easily removed, leaving the dentine exposed and extremely sensitive. These might all be

termed exaggerated cases of pigmentation. The form which is most common presents to the naked eye only a slight yellow-brown discoloration. The microscope shows that the pigmentation occurred during the formation of the structure. If in non-stratified enamel, there is no demarkation of the brown spots, but faintly marked offshoots taper towards the dentine. In stratified enamel the deepest stain corresponds to the boundary of the strata, tapering towards the neck, fading towards the proximal line, showing a fan-like configuration in longitudinal sections. This pigmentation may invade all the layers of enamel, being perhaps more marked in the deepest portions. Above, the microscope shows that the brown discoloration concerns the basis-substance of the enamel rods only; that the widened interstices are due to deficiency in formation, and not merely to contrast in color; that the transverse lines are also enlarged; that the enamel fibres are more conspicuous than even in normal enamel of temporary teeth. Pigmented enamel also readily stains with an ammoniacal solution of carmine. It is not yet known what disturbance of the enamel organ, interfering with the proper construction of the basis-substance and the deposition of lime-salts, causes the brown discoloration. All pigments of the body depend upon the coloring matter of the blood, but careful studies in the history of the development of enamel must be made, before the solution of this question can be reached. One point is positive, viz., that pigmentation is congenital, invading both permanent and temporary teeth, acquired pigmentation being rare except as the result of caries. Caries invading spots congenitally pigmented causes an orange discoloration, which readily takes the carmine stain, the congenital brown, acquired orange, and artificial red mingling in beautiful shadings.

The granulation of enamel is a peculiar pathological condition by no means rare, and consists of pear, spindle and club-shaped spaces in the middle of the substance of the enamel, as well as at the junction of the dentine and enamel, as heretofore recognized. These spaces are enlargements of the interstices between the prisms and the tenants of the interstices. Plate VI represented this condition under high powers of the microscope.

The interprismatic spaces of the enamel bear some resemblance to the interglobular spaces of the dentine, both conditions being present in highly marked degree in one specimen. The deficiency

of basis-substance and lessened amount of lime-salts render granular enamel both brittle and prone to decay. Stratification, pigmentation and granulation, are all pathological conditions of the enamel, meaning a deficient formation of the basis-substance and also decreased deposition of lime-salts, and are of the highest importance in the etiology of caries.

The conclusion reached was, that ailments of either the mother during gestation, or of the infant during the earliest periods of life, cause these anomalies; that they are more common in high life and in persons of refined habits, debilitated by the luxuries of civilization, than among hard-working people. The pathology of enamel has no literature.

DISCUSSION.

Dr. C. N. Pierce—Said that he wished to congratulate the association on the opportunity they had enjoyed, through this paper, of examining diagrams illustrating vital conditions, such as were not often offered to any society. He desired to call attention to the fact that number One illustrated conditions that must have been confirmed in utero. Between the dentine and enamel the line of first calcification must have taken its shape as early as the fifteenth or sixteenth week in embryo life. It must have had its peculiar form at that time before being rendered permanent by the deposition of salts of lime. This afforded a valuable lesson in the vitality of structure, and how readily it is modified by lack of nutrition. The abnormal projection of dentine-structure was doubtless due to some peculiarity of nutrition currents at that early period. It teaches the readiness with which tooth-structure is modified by systemic conditions.

Diagram No. 3 afforded the same index as the concentric lines of the tree-periods of growth. In the enamel of the diagram referred to there were clearly indicated periods of growth and arrest—nutrition and cessation—affording another proof of the liability of the teeth to be influenced by systemic conditions. And so on through all the diagrams, each representing a special phase, but all teaching the same lesson—the undoubted modification of these hard structures by systemic conditions.

Dr. A. H. Thompson—Desired to ask Dr. Abbott to say something further about the white spots on enamel.

Dr. Abbott—The only evidence we have of the diminution of lime-salts is the greater amount of organic material; it must be that much short of inorganic elements. The lime-salts are loose, can be scraped off with the thumb nail, will almost break off by looking at it. The yellow spots look like enamel, but are not; the interprismatic spaces are two or three times larger than normal; the lime-salts then must be less; the relative proportion is changed. There is a certain amount of satisfaction in having a knowledge of disease, even if we cannot cure. With reference to "sterilized earth," what I said was a quotation from the French, and not cited as authority.

Dr. T. W. Brophy—Dr. Abbott said that all defects previous to eruption were congenital. According to some observers, as Prof. Eames, of St. Louis, endorsed by Prof. Black, some defects are the result of absorption, similar to that occurring in the roots of deciduous teeth, and due to the same agent as that which absorbs the roots. Such an absorption may take place; I have seen the destruction of the enamel of incisors from this cause.

Dr. Abbott—The condition I referred to is, in my judgment, impossible after eruption—the very dark, porous, granular condition of a line running out upon the surface. It requires no stretch of imagination to see that something might flow in and affect all the tissues along that line. It may be possible to show that it is a case of absorption, but I think it stretching a point; I cannot see how it could occur similarly to the absorption of the root.

Dr. Keith—Said that he had had a peculiar case in practice. He had a regulating plate in the mouth of a little girl, which covered one of the deciduous teeth, the one to be replaced by the first bicuspid. She was absent two or three weeks. When he removed the plate he found the crown of the deciduous tooth imbedded in the vulcanite plate, with every particle of the dentine dissolved out; it seemed as if cells had grown up above the margin of the gum, and eaten out the dentine, without touching the thin margin of enamel.

Dr. Atkinson—The dentine must be reduced to fluidity before it can be taken up by absorbents. You say that the carneous body does the work! No more than the liver secretes liver. Dr. Abbott gave me an adult tooth that had lost two-thirds of the length of the root; it was perforated as if by drill holes. He had not had time

to cut it yet, but intended to do so. It was a case of retrogressive metamorphosis, but we cannot understand that.

Dr. L. C. Ingersoll—Read a paper entitled "The Alveolar Dental Membrane; Unity or Duality, Which?"

Handing his specimens to be passed around, he said that he had no doubt of his ability to read his paper while the specimens were being examined, but he was not so certain of being heard or understood.

The following is a summary of his argument: He said that the dental membrane offered a subject which commended itself to our consideration; that upon the condition of this membrane depended the health, safety, and comfort of the teeth. Unless it was in a healthy condition the pulp might be capped and the teeth filled in vain; but if the membrane was vigorous the crown might decay, and the pulp die, and yet a serviceable tooth be built upon the root. If the membrane fails the whole structure is gone. Much study is given to alveolar abscess, to pyorrhœa, but the histology of the membrane as a dental tissue is scarcely referred to. The enamel, the dentine, the cementum, the pulp—three hard and one soft tissue springing from the dental follicle—are each fully treated of, but the membrane has but passing notice. It is a subject which is full of difficulties. Does it appertain to the dental follicle? Early anatomists regarded the tooth as bone, and the alveolar periosteum as an osseous membrane. In the development of the tooth the crown is first formed, then the neck, then the root. The follicular neck is a point of particular interest. He quoted from Legros, Magitot, Tomes and other authors, on this point.

The alveolar walls develop simultaneously with the root. Proceeding out from the base of the follicle is a line of cells, the formative point of cementum, and another line, the formative organ of the alveolar walls. One develops down to form the socket, the other forms the cementum, the two layers being contiguous. The question before us is—is the tissue known indifferently as dental periosteum or as alveolar membrane, single or dual? The earliest writers say nothing on the subject. Later authors dismiss it with a few words, speaking of it as a connective tissue well-supplied with blood vessels investing the root and lining the socket. Different names are given to it, showing varying opinions, but it cannot be studied from authors, they are so shy of mentioning it. Where

a mucous membrane rests upon bone, it is intimately connected with it. Analogy would lead us to expect that a true alveolo dental membrane would be in two layers; demonstration proves it. When a tooth is extracted the root is covered with a membrane, and the socket is lined with membrane. If the membrane exists in two distinct layers, have they the same origin?

The alveolar lining must be referred to the osseous system. The organ which forms the cementum cannot be the same as that which forms the alveolar walls. They are intimately united, but not one; they are distinct and separable; two layers of distinct origin and performing different offices; an outer layer of connective tissue, with blood vessels, an inner layer of a fine network of cells, there being a marked difference in their histological character, the fibrous elements of the outer passing insensibly into the network of the inner—the peridentium of the tooth, the periosteum of the bone. However close in juxtaposition, they are widely apart in function. Tomes says that two membranes may be assumed, but would be extremely difficult to demonstrate; that the fibrous elements of the outer portion blend so insensibly into the bands of network of the inner part, that neither sight nor touch, nor any other sense can show any distinction, leaving only a mere inference that it is two rather than one.

Dr. Ingersoll said that while investigating this subject he visited Dr. Black, to see if he had any specimens that would throw light on the subject. He found one specimen that was perfect in all its parts, and in which the osseous membrane and the cemental membrane appeared entirely distinct. First, there was a fine network in the meshes of the cemento-blasts, then bundles of fibres in flattened bands, side by side, passing in oblique and curved lines toward the bone. The reticulated osteo-blasts were much larger than the cemento-blasts. None of the straight lines of the peridental membranes were found in the alveolar membrane.

There are thus two membranes, with special functions, the outermost membrane forming the bone, the innermost the cementum. They are similar, but not the same. Tomes says the development of bone might, with some modification, be applied to the development of cementum. Have they different sources of mineral and vascular supply? If the membrane is dual, two sources would be expected; from the pulp on the one hand, from sub-mucous tissues

on the other. Pathology will reveal the difference in ex-ostosis and ex-cementosis. Irritation follows the course of the blood-vessels. Under the influence of irritants the root membrane takes on abnormal action; this is one cause of ex-ostosis—really ex-cementosis. If the nerves and blood-vessels follow the course of the membrane, and it is not dual, why are not both layers affected? Why do we not have both true ex-ostosis or enlargement of the socket, and also ex-cementosis or enlargement of the root, and consequent tooth-anchylosis? When two roots are ex-ostosed, the two grow together by impingement, but never the socket and root; hence there is no osseous union. Portions of the socket are removed, and inflammation of the membrane induces hypertrophic conditions. Finally, he drew the following conclusions:

1st—The alveolar and dental membranes are not identical; the root membrane is in separate layers.

2d—The two layers have not the same origin; they originate respectively in the osseous system, and in the dental follicle.

3d—They differ in structure; banded and reticular.

4th—They have different functions; one forming the socket, the other the root.

5th—They have different sources of vascular and mineral supplies.

6th—Pathology points to the same fact; there is no cemented union between the root and the socket.

7th—The rapid mineral absorption of the root, without exfoliation, is due to the special nature of the dental membrane, as distinct from the membrane of the socket.

Thus surgery, pathology, and physiology all point to the same conclusion—the duality of the alveolo-dental membrane.

On motion the society adjourned to Thursday at 9 A. M.

(TO BE CONTINUED.)

CORRECTION.—The Scalers used by Dr. A. W. Harlan in his clinic on Pyorrhea Alveolaris, at the Minneapolis meeting, were not those of Dr. Allport, as incorrectly stated in the report of proceedings (page 538), but those of his own invention, as described on page 556 of the October issue. The inaccuracy in the report is regretted.—"MRS. M. W. J."

AMERICAN DENTAL SOCIETY OF EUROPE.

THIRTEENTH ANNUAL MEETING, HELD IN BERLIN, AUGUST, 1885.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

The meeting was opened by the reading of a paper from Dr. Du Bouchet, of Paris, on "The Treatment of Pulp Canals," of which the following is a summary :

The subject of pulp canals, their treatment and filling, occupies a large place in the discussions of our Dental Societies at home. The results obtained, good or bad, are promptly appreciated by the patient. It is interesting to note the various methods of treatment, displaying experience and considerable manipulative skill, in the attainment of the same end—immunity from pain, and durability. I will give as briefly as possible my several ways of proceeding, from the moment when we have obtained the partial devitalization of the pulp in order to prevent useless pain to the patient in its removal. Let us, for convenience, suppose an inferior cavity in the crown of a molar, from which we are about to extract the pulp. I would here say that I am a great believer in the exclusion of air and moisture as a necessary measure to success. Before my class at the *Institut Odontotechnique* of France, I have particularly insisted upon this condition, which to many seems to be one of the most difficult things to realize. The rubber dam being applied, we remove the pulp as thoroughly as possible by means of one of the various extractors, and dry the canals thoroughly by means of bibulous paper points. We next fill the canals loosely with these paper darts, the points of which are slightly moistened in old-fashioned wood creosote. The operation is completed by filling the pulp chamber with soft gutta-percha, and the rest of the cavity with a harder grade of the same article. If we find the paper points, after forty-eight hours, presenting no considerable degree of dampness and no other odor than that of creosote, we may replace them by fresh ones absolutely dry, and seal up the cavity. On the other hand, should we find upon the removal of our first filling that the paper points were considerably moistened or discolored, the canals should be dried with absolute alcohol, and allowed to remain several days filled with the paper twists. Should the periodontitis persist, I apply my aspirator, or artificial leech, preferring a slight derivation

morning and evening to drawing a quantity of blood from the gum at a single sitting. I have found the instrument just mentioned of most efficient application in numerous instances. It is known to some as a modification of Dr. Wingate's Depurator. For a permanent root-filling, I insert as deeply as possible an adjusted splinter or slip of rattan wood, the extreme end of which has been dipped into wood creosote. By the side of this I introduce a fine thread of very soft gutta-percha, until I have filled the canals and half the pulp chamber, which latter I complete with oxy-phosphate cement. When the pulp canal is filled with putrescent matter I do not attempt to cleanse it thoroughly at the first sitting, but remove all debris in the body and near the apex of the canal, and thoroughly syringe out the cavity and canal with fresh oxygenated water, closing the canal at its entrance with only a pellet of cotton, rather loosely inserted. The directions given to the patient are the following : Every evening, before retiring and after having well brushed the teeth, syringe well the cavity of the tooth and root with oxygenated water, and close promptly with a cotton pellet. At the second sitting, which is generally upon the second or third day, I endeavor to clean the canal more thoroughly, and then I repeat the syringing, and closely stop the canal with cotton. This is repeated for several days, according to the nature of the case, after which the canal is treated as described above, when, if all goes smoothly the canals may be filled in a permanent way. In my hands this treatment has generally proved successful, although I am aware it is not quite the same as that followed by others of the profession.

DISCUSSION.

Dr. Sachs—In cases where I have destroyed and extirpated the pulp, I dry the canal with chloroform, alcohol, and hot air, and fill at once with gutta-percha threads. They easily go up to the apex of the root. I never use gutta-percha dissolved in chloroform, as I believe the latter, retained by the gutta-percha near the apex, will not evaporate, and the gutta-percha remains as a soft mass, which may cause periosteal trouble.

When a fistulous opening on the gum is present, I clean the pulp chamber and canal up to the apex, wash out with alcohol and chloroform, dry with hot air, and pump to the apex a little iodoform solution (iodoform 1, ether 10,) with a nerve-broach covered thinly

with cotton, and fill the canal at once with gutta-percha, and the crown, if desirable, permanently. Such teeth, treated as described, very rarely give any trouble afterwards. In case the canals are filled with putrid matter, I clean the pulp-chamber and about one-half of the root canal at the first sitting, carefully avoiding any pressure which could drive putrid matter through the foramen. After syringing out with warm water, I use the hot air syringe freely, then very loosely put into the pulp-chamber and the clean part of the canal a piece of cotton dipped in the iodoform solution, and close the tooth for three or four days with a temporary stopping. At the second sitting I remove the filling and cotton, and try to clean the canal up as far as possible, but very gently, to prevent pressure, as before remarked, and wash out and treat as before. At the third sitting, if there is no odor or moisture in the canal, I fill with gutta-percha permanently, and finish.

Dr. George—Suggested that the readiness with which wood absorbs moisture might be an objection to the method detailed in the paper. He uses for difficult cases thin gold wire dipped in a solution of gutta-percha, but would prefer wood if it could be shown to be equally good.

Dr. Patton—My system for filling *such canals as can be filled,* is the old style of cotton wool and oxy-chloride of zinc, in the mixing of which I combine some of the iodoform crystals, incorporating the wool with the rather thin mixture and working it gradually up the canal into place. A pressure exerted from the body of the pulp-chamber causes the cement in this state to fill up any interstices not thoroughly occupied by the wool, and I am of the opinion, though I may be alone in it, that by this means the canals are filled. I have had very few failures, therefore I still adhere to it, and I have still to hear of the system which has *no* failures to record.

When the canals are so minute that it is impossible to fill them thoroughly, after cleaning out, as far as my manipulative capacity allows, I introduce the mixture of oxy-chloride of zinc and iodoform combined, somewhat thinner, and force it by pressure of a pellet of cotton until it will fill up what it can, trusting the rest to luck—the boon companion of dental medicaments in more treatments than this.

Prof. Hollander—It seems to me that the gentlemen have been mixing many things together. The question is not how shall I fill,

but how shall I disinfect, root canals, and the method of proceeding must depend largely upon the conditions present, not in the canal alone, but around the root. There are, furthermore, as stated by Dr. Richter, many roots which it is impossible to treat at all. As for disinfectants, many are in use, and mercurial sublimate ranks very high among them.

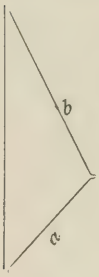
I would not recommend iodoform in the manner which has been presented, nor should applications of it be frequently renewed. The mode of action of iodoform is peculiar. By contact with decomposing matter iodine is set free, which accomplishes the disinfection. This takes place very slowly, so that we do not get the full effect till many hours after application is made. When iodoform is employed for disinfecting a pulp-canal, it is not necessary that it should be brought quite to the apex. The free iodine will work its own way along the canal and effect a complete disinfection.

Dr. Patton—"There is nothing that succeeds like success." What we need is results, and I have had successful, satisfactory results from my practice. This is enough for me.

It is impossible to lay down fixed rules. The temperament and nervous organization of both patient and operator play an important role in practice. What is good for one is not good for another, even if the cases are quite similar. What one man can do under peculiar circumstances, another will fail to do in that particular manner, but each succeeds best in his own way; "experientia docet," or, as the Irishman said, "experience does it," and only time will teach a practitioner, after having studied his patients' mouths for some years, what is really the best to be done in each individual case. Every year proves to me more and more that an eclectic use of material is necessary, and the best but hardest things to find in the market are the substantial wares, judgment and common sense.

Dr. Miller—I would like to call the attention of the gentlemen to the paper points referred to by Dr. DuBouchet. Dr. Abbot taught me the use of these when I first began the practice of dentistry, and I have been using them ever since. I find them invaluable, and think I would nearly as soon be without nerve broaches as without these paper points. They are excellent for drying out root canals, and for carrying antiseptics to the apex of the root.

They must be made from fine, tough silk paper, and with a little practice in turning them they can be made so stiff as to pass easily to the apex of even crooked roots. They are also valuable in determining the course of fistulous tracks. The paper is cut for



rolling in the form of the figure, held at the side *a*, between the thumb and index finger of the left hand, and rolled between the thumb and middle finger of the right hand, beginning at about the point *b*, and twisting towards the apex. The first attempt to make them will fail. Those who wish to make good paper points must try again. I am very much indebted to Dr. Galbreath, of Hanover, for showing me a very valuable use for a very simple and cheap instrument—the common Swiss watch broach. These broaches are very fine, three or four-sided, and slightly tapering to the point; they should be so soft as to easily bend without breaking. They are much finer than any broaches I ever saw in the dental depots.

For the finest canals I wind on one of these broaches just enough threads of cotton to carry the antiseptic, and it is very seldom indeed that one cannot reach the apex. If desired, by slightly loosening the cotton before introducing it, we may withdraw the broach, leaving the cotton in the canal. One word regarding the question of antiseptics. It appears that Dr. Hollander has, no doubt unintentionally, given the impression that iodoform acts only by setting iodine free, and that we cannot expect it to accomplish anything before twenty-four hours after application. This is, of course, a wrong impression. Iodoform has, independent of the presence or absence of putrifying matter, an immediate powerful antiseptic action, and it is this property which we make most use of in dental practice.

Prof. Hollander—I am obliged for the correction. I fear I did not express myself clearly on that point.

Dr. Van Marter—I use the broaches referred to by Prof. Miller, and find them very valuable.

ON THE ARTIFICIAL PRODUCTION OF DENTAL CARIES.—BY DR. F. FOERSTER.

Many of the members of the American Dental Society of Europe here present will remember that at the meeting of this

Society in Cologne, August, 1882, Prof. Miller presented a paper on the agency of micro-organisms in the production of dental caries. In that paper the view was presented that while the phenomena connected with dental caries are often very puzzling, and do not as yet admit of a satisfactory explanation, yet, in the majority of cases, these phenomena must be attributed to the action of external agents, among which micro-organisms occupy the most important place. This view was supported by a demonstration of microscopic preparations of carious dentine, produced outside of the mouth.

Since that time Prof. Miller has continued his experiments, and has succeeded in producing artificial caries which is not to be distinguished from natural. At the same time, Milles and Underwood, in a lecture before the Odontological Society of Great Britain, stated that they repeated these experiments and had arrived at very different results, but as has been already pointed out, their experiment was made under such different and such abnormal conditions that negative results might have been predicted from the beginning.

There is no subject of more importance to practitioners of dentistry than the etiology of dental caries, and this fact alone fully justifies my presenting to you the results of my experiments on the production of caries outside of the human mouth. In these experiments I have endeavored to follow the rules at different times laid down in the Independent Practitioner.

A number of sound teeth, or teeth from which the carious portions had been thoroughly removed, were broken into pieces of various sizes, or sawed into sections about one mm. thick. These were placed in a mixture of bread and saliva of about the consistency of thick cream, then set in an incubator and kept at the temperature of the human body. In a few hours the mixture showed a very strong acid reaction, due, according to Miller, to the production of lactic acid. At the end of each week the broken teeth and sections were taken out of the mixture, washed in cold water, put into a fresh dish of saliva and bread, and replaced in the incubator. After the seventh week the dentine was so far softened that sections could be easily cut on the freezing microtome. These were stained in fuchsine, washed in absolute alcohol, cleared with oil of cloves, and mounted in Canada balsam. A microscopic examination showed that organisms had penetrated many of the tubules to a consider-

able depth. With each week the softening of the dentine became more extensive, and microscopic preparations, made from time to time, showed that the micro-organisms were penetrating deeper and deeper into the tissue of the tooth, until at the end of the fifth month the tubules were found to be much dilated and the walls broken down, in some places forming oval spaces or caverns in the dentine; in other words, showing all the characteristics of natural caries, and not to be distinguished from such. At the end of six months, when I ceased experimenting, I found the broken teeth and sections so soft that I could easily penetrate them with a broken excavator. Even the half molars could be pierced like cheese.

The enamel, which was entirely disintegrated, showed the soft, chalky, white color which we so often meet with on the buccal surfaces of molars near the gum, and could easily be picked from the dentine. At the same time a number of pieces of dentine from the same teeth were subjected to the action of fungi from the human mouth, but under such conditions that no acid could be found. These pieces remain unchanged to this day. The results of my experiments show that the first stage of dental caries is the decalcification of tooth-substance by acids, the greater quantity of which is, according to Miller, formed in the mouth by fermentation, and that it is highly improbable that the fungi of the human mouth can have any effect whatever upon teeth which have not to some degree been previously softened by the action of acids, and that the second stage is the simple destruction of the decalcified tooth-substance by micro-organisms.

Dr. Sachs read a paper on

THE DETERMINATION OF MATERIALS FOR FILLING TEETH.

of which the following is a summary:

Nothing in the practice of dentistry depends so much upon the taste, ability, prejudice and caprice of the operator, as the choice of material for filling a decayed tooth. In all the different handbooks we find no strict law when and in what places we should use the different materials employed for the purpose. The opinions of the most skillful and experienced dentists differ so widely, that the young man beginning to practice his profession finds himself in a difficult situation in regard to this point.

There is no material used for filling teeth which does not in certain cases promise the best results, while in others it would be

worse than useless. Of the properties desirable in a filling material, gold possesses more than any other, and should always be employed when the structure is dense and hard, except in those instances in which, for æsthetic reasons, its use is contraindicated or objected to by the patient, or where the cavity is very difficult of access. It is an excellent material for filling approximal and lingual cavities in front teeth, or masticating buccal and approximal surfaces of molars. But it should never be used for filling soft, chalky teeth of young persons, as the work will soon fail, and secondary decay often be found in less than one year. Nor should it be used for filling teeth with very frail or thin walls, or for deciduous teeth.

Gold may be employed in many cases in connection with tin, as first recommended by Dr. Abbot, of Berlin. This combination has in certain cases a great advantage over gold or tin alone. It can be worked with great ease and rapidity, it is easier adapted to the walls of the cavity, it is not injured by moisture, and it expands slightly after insertion. These properties make it highly useful for filling soft, chalky teeth, or for the cervical walls of approximal cavities in molars and bicuspids. It may be used with success for crown and fissure fillings for children from six to fifteen years of age, for all approximal cavities excepting the six anterior teeth, for temporary and half erupted molars, in which we often find large fissures on the grinding surface.

One sheet of No. four to six non-cohesive gold is laid upon a sheet of tin-foil of about the same thickness, and cut in three strips, which must be twisted between the fingers into a rope. I prefer to have the tin-foil on the outside, having found it easier to manipulate in this form than when the gold is on the outside. The oxidation of the tin, which will take place after a short time, causes a very close union of the two metals. The filling then assumes a dark or gray color like amalgam, but it does not stain the tooth.

Tin alone forms a valuable material for filling teeth, but ever since its combination with gold has had such success, I should recommend it to students only for the sake of practice.

Amalgam has its advocates and opponents. The latter say that the use of amalgam has discredited dentistry, that the ease with which it can be worked has caused many dentists to do poorer work than they would otherwise have done. This may be true in

many cases, but no one can doubt that thousands of teeth have been saved by the use of this material, even in the hands of quacks, who are not competent to make even a poor gold filling.

Amalgam has also proved very valuable for filling third, and distal surfaces of second molars. In cases where decay has gone very far below the margin of the gum in approximal cavities of molars and bicuspids, it is a good method to cover the cervical wall with amalgam and finish with gold. Of all the different amalgams in use, I prefer for filling that third of the distal approximal cavities in molars that lies near or below the gum, the common copper amalgam, as this has, theoretically and practically, been proved to prevent secondary decay better than the finest gold amalgam. The remaining part of the cavity must be filled with an amalgam that will oxidize as little as possible. If copper amalgam is inserted entirely free from moisture, it will not stain the tooth at all, but the metal itself will become very dark in color.

Gutta-percha and its different preparations may be used as a temporary filling to the greatest advantage.

Cement fillings may be used for cavities with exceedingly fragile, high walls, where it is not advisable to use amalgam, and where you do not wish to cut the walls down ; also for cavities where only one high wall remains, the others having broken away. An example of this we frequently see in bicuspids. It may also be used to fill tender and sensitive milk teeth, when you have no reason to suppose that the pulp is seriously affected. It may, furthermore, be used as a temporary filling for sensitive and soft upper front teeth, where the patient objects to the use of gold. It may also be used to fill the lower portion of very deep cavities; in these cases time is saved and the pulp is protected. But the most important instances in which cements may be used are for capping exposed or very thinly covered pulps, for filling the pulp cavity and canals of dead teeth, and for setting pivot teeth. The oxy-chlorides and oxy-phosphates should, however, never be used in proximal cavities, unless the neck of the tooth is protected by a layer of gutta-percha.

DISCUSSION.

Prof. Miller—Since Dr. Sachs has called attention to tin and gold fillings, I cannot let the opportunity go by without saying a

word in their favor. The combination is now extensively used by Americans in Europe, and I have thus far met with no one who had given it a trial who does not speak in the highest terms of it.

The statement of Dr. Sachs, that it requires the same care to make a filling of tin and gold that it does of gold alone, is misleading. Of course, we should use equal care in the insertion of every filling, of whatever material, for the lack of care is liable to be followed by slovenly work, but a tin and gold filling will succeed with an amount of care small enough to wreck a gold filling. To illustrate: A molar of a child three to four years old is decayed on the grinding surface, and the child very restless. We dry the cavity, remove the debris and superficial caries only, saturate with carbolic acid and fill with tin and gold, without drying, in from two to four minutes, without pain, and the child wants us to fill another tooth. This filling will last longer than a dozen gold fillings, made with the same care. It is the ease of insertion, freedom from injury by moisture, slight expansion after filling, thus hermetically sealing the cavity, which render this combination so valuable. I find that I am going over the old story which I have told so often, and if you do not know it already you never will.

Dr. Van Marter—I was taught the use of tin and gold many years ago, by Dr. Abbot; I have used it very extensively, and like it very much.

(TO BE CONTINUED.)

NEW YORK ODONTOLOGICAL SOCIETY.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

Arrangements having been completed for the meetings of this Society to be permanently held in the parlors of the New York Academy of Medicine, No. 12 West 31st Street, the first gathering of the members in their new quarters took place on Tuesday evening, October 13th.

The President, Dr. William Jarvie, read an address, giving a brief history of the Society from its inception to the present time, what it had accomplished in the past and its possibilities for future usefulness, stating that up to the present time the meetings of the Society had been held at the residences of individual members, which had given opportunities to visit the operating rooms of many prominent members of our calling, where ample light had been afforded for examining office appointments, appliances, instruments, etc., and for witnessing cases of peculiar operation. All this, together with the social element, which had been engendered by their former mode of coming together, had tended to make the occasions of their meetings exceedingly interesting and enjoyable. But the time had come when a change was deemed advisable, and all the members can now have equal opportunities of doing each their share in the way of contributing to the welfare of the Society. It is the intention of the Society to have a library and museum, to which all the members and friends are invited to contribute books, appliances, mechanical devices, instruments, and specimens of interest of every type suitable to the purpose, that can be procured.

At the close of his address President Jarvie introduced Prof. Abraham Jacobi, M. D., President of the Academy of Medicine, who, in behalf of the members of the Academy, gave an address of hearty welcome to the Odontological Society to their new place of meeting. Dr. Jacobi, in the course of his remarks, dwelt at length upon the relations of modern dentistry to general medicine, and considered it one of the branches of the great healing art, contributing largely in the way of ministering to human ills, of alleviating the physical sufferings of mankind, and doing its part in the way of insuring health and comfort to the race. The careful study of embryology, he claimed, divulged the fact that many of the mortal ills had their origin in the earliest stage of fœtal formation, and that various taints of parental weakness were stamped on the embryonic germ which is to develop and become an animated human being.

The peculiar characteristics in the formation of teeth, respecting shape, color, texture, etc., were referred to as types of organic structure, showing conditions of health and marks of early disease. He referred also to the great advances made in dental science, which had followed in the train of dental art, and believes that dentistry

is to play an exceedingly important part as a specialty of medicine.

The excellent address of Dr. Jacobi was listened to with profound attention and interest.

Dr. J. Smith Dodge, Jr., responding for the Odontological Society, alluded in fitting terms to the warm words of welcome embodied in the address of Dr. Jacobi, the sentiments of which were greatly appreciated. He spoke also of the mission of the modern dentist, and the strange yet somewhat prevailing misconception of their duties and requirements, and that, although there were some men who call themselves dentists and who occupy a very limited sphere in the field of dental labor, the earnest and prominent members of the profession are constantly reaching forward, grasping at whatever science may reveal that bears upon their special duties, and giving much time in the way of research and investigation, in order to fit themselves more thoroughly and perfectly for the labors of their calling.

President Jarvie introduced Dr. John A. Wyeth, stating that he had several patients in an adjoining room, for whom he had operated, and whom he would bring before the Society in order that the results of his operations might be witnessed by the gentlemen present.

The first patient showed a staphyloraphic operation which, viewed from a surgical standpoint, was a decided success, showing a marked degree of skill on the part of the surgeon. The operation was rendered painless by a free application of hydrochlorate of cocaine.

Another patient was brought forward showing a case of diseased antrum, which was still under treatment. From the angle of the mouth to a point some three inches back, the cheek had been laid open to secure access to the diseased territory. A case of alveolar abscess was also presented, which still discharged through an opening in the cheek. A fourth case was that of a lad apparently ten years of age, for whom the surgeon had removed the left half of the inferior maxilla in order to dispose of a malignant sarcoma.

Dr. J. Morgan Howe—Stated that the operation performed by Dr. Wyeth for cleft palate was a beautiful operation, but he desired to know what indications would warrant such operations, and what benefit to the patient would be gained thereby.

In reply, Dr. Wyeth stated that it was an aid to deglutition, and prevented the food from being forced into the pharynx and nares when taking nourishment. He thought also that it somewhat improved the speech, but if this latter object was to be considered the operation should be done quite early in life, as it is difficult to break up a long acquired habit of articulating words, or to unlearn what had become thoroughly learned.

Prof. Frank Abbott—Asked Dr. Wyeth if he deemed it better to operate in such cases than to furnish artificial appliances.

Dr. Wyeth—Was not so positive as regards an improvement in speech, yet he believed it a good thing to operate, and as he possessed a fine set of instruments, devised by Dr. Goodwillie, he should continue to operate so long as he could find subjects to work upon.

Dr. N. W. Kingsley—Regretted the last remark of the gentleman who preceded him. He did not believe that Dr. Wyeth or any other surgeon, if open to reason and conviction, would ever operate for cleft palate if they had seen such results as he had witnessed from surgical operations, and from artificial appliances. The latter will render speech perfect, but surgery is a failure. The contracted condition of the velum, resulting from the surgical union, makes perfect articulation impossible. Where the palate is defective, speech is always defective, consequently surgical operations never improve speech. He declared surgical operations of this sort worse than useless, for where performed they prevent the use of artificial appliances, and were no gain in any respect. "Art," said the speaker, "gives the means of benefit, but surgery does not."

As regards deglutition, Dr. Kingsley did not believe that it was benefited in the least by surgery. He had carefully studied this matter, and in the many cases that had come to his notice no marked improvement was ever made in this respect by surgical operations.

As the hour of adjournment was reached, the discussion of other matters was postponed, and the members were invited to a sumptuous repast that had been prepared, where all could test their own powers of deglutition.

Editorial.

TO JUNIOR DENTISTS. No. II.

PULP CAPPING.

My Dear Dr:

Your letter, containing a beautiful specimen of secondary dentine formed under the protecting influences of an oxy-chloride of zinc capping, is at hand. The case illustrates what function can do. But for one such instance of a return to a true physiological condition I fear the ninety and nine are in their pupa state—sleeping volcanoes, which may at some time, after horrible intestinal disturbances, burst and bring destruction in the train of sequences. Bitter experience has taught me that living tissue cannot tolerate chloride of zinc. It is an exasperating irritant. Years of faithful trial and careful observation have afforded abundant reasons for changing a former opinion, too hopefully entertained and incautiously expressed. Bitterly have I repented my credulity. Let me here say, however, that I have not abandoned the use of this material, though I no longer permit chloride of zinc to come into the immediate vicinity of exposed pulp tissue. I frequently succeed in saving an aching tooth alive, and when it is accomplished, I thank God and take courage. But in such cases, I triumph, *not* by introducing irritants into an already disturbed territory, not by fanning an existing flame, but by precisely the opposite method. It is simply incredible how we have persisted in the attempt to stop a conflagration by stirring up the fire. It is high time that we traveled in some other direction, for, in the main, we have all got far enough from the goal of our ambition. It is only such an occasional success as this which you chronicle, that has encouraged us to persevere in our thorny path.

One of us is certainly very much mistaken in the view he takes of the therapeutical action of creosote and carbolic acid. You recommend their application to the exposed pulp tissue, that they may, as you say, unite with it, and thus form an insoluble pellicle (carbolate of albumen), which will protect the pulp. Protect it from what? From the oxy-chloride of zinc? If that is the object you admit the point at issue, which is the question whether or not that substance is an effective shield. If the pulp must be protected from its protector, pray where is the security?

And just here is my misgiving. Have we all this time been endeavoring to save pulps by turning them over to the care of their worst enemy? Is it the old fable of the Kite, the Hawk, and the Dove over again? You remember—"*At in columbare receptus, uno die, majorem stragem quam milvius longo tempore.*" Shall we never heed the good old "*Haec fabula docet,*" of our school-boy days? If, then, the dental Dove needs to be protected against the chloride Kite, are we sure that we have not brought in a carbolate Hawk to do it? Carbolic acid is a cauterant and destroys pulp tissue. It burns it, and leaves an eschar as the result, which does not materially differ from that left by gangrene or sphacelus. This cauterizing creates, even in healthy tissue, an inflammation which may result in pus between the living and dead, and this in turn cause a slough of the cauterized crust or scab. Yet you would, after bringing about this state of affairs, securely confine this slough against elimination by imprisoning it beneath walls of oxy-chloride of zinc.

Let us see how reasonable appears your theory. There is, in the tooth in question, a violent state of inflammation. To soothe this you apply one of the most violent irritants you are acquainted with—so violent in its action that it entirely destroys a part of the life you are attempting to save. Lest, however, this be not sufficient, you introduce immediately upon the sore spot, over the destroyed and unsloughed tissue, another violent irritant, that the work left incomplete by the first agent may be finished by the second. Pray, what kind of a way is this to soothe to quiet rest an exacerbated member? Were I in a state of mental irritation, I should not like to have you approach me with such psychological emollients. I can scarcely conceive of a course that would seem more certain to result in loss of a tooth than such an one. Think of it; in an endeavor to make sensitive tissue tolerate an unendurable substance, you destroy the vitality of that with which it must come in contact, and have an offensive, putrifying corpse for the peacemaker. Is this the pacifying, tranquilizing process which shall bring peace to these quarreling elements? Pray, why do dentists apply carbolic acid in cases of simple inflammation? What therapeutical action has it that it should be indicated? If there be putrescence, or sloughing, then I grant you its exhibition; but for simple inflammation, or engorgement of the pulp—never.

Let us get more into line with physiological action. It is useless to fight against the unceasing activities of nature. We must place ourselves parallel with her path, and not get directly athwart her course and endeavor to force her into our worn ruts. If a pulp is to be capped, the alarmed and irritated tissue must be first lulled to sleep, and then the operation so delicately performed as not to waken it. If it once finds out that it has any other than its natural bed-covering, farewell to any hopes of permanent peace. The amount of it is, the whole system of pulp-capping is unnatural, because it is an attempt to establish abnormal relations. Like trepanning, it is a successful effort to perform an impossibility. Would I then abandon all hopes of saving exposed pulps? By no means. While trepanning is successfully performed, pulp-capping may be. But the former is not done by cauterizing the dura-mater, then placing an irritant in immediate contact and immovably confining it, nor can the latter be successfully done in the same manner, in any other than exceptional cases. The agent for properly capping exposed pulps, has not, I think, as yet been introduced to the profession. It will be discovered, for many eyes are turned in that direction; but when found, it will not be an exasperating irritant.

I have no faith in specifically applying anything to an inflamed pulp for a covering. The disturbed territory must first be restored to a comparatively healthy condition by soothing applications—the use of *Tinct. Aconite Rad,* or other antiphogistic remedies. Then comes the opportunity to attempt the bridging of the chasm, but should the sleeping lion be again aroused, there is nothing to do but to commence *de novo.* We shall sometimes fail through ignorance or awkwardness, but there is nothing for us to do but to keep trying till the long-looked for desideratum is gained, and we can cap and permanently fill over an exposed pulp, with some assurance of permanent success.

A WONDERFUL PIECE OF MECHANISM.

In the August number of this Journal, page 451, we gave an account of an extirpation of the larynx, by Prof. Roswell Park, of the University of Buffalo. The operation was one of the most formidable that is known to surgery. This was, we believe, the third time in which it had been performed in this country. In the first

case the patient died in about seven hours. The other lived eight months, but never made a full recovery. The operation was original with Billroth, but it has since been attempted a number of times in Europe.

Dr. Park's operation was performed upon a man of sixty-four years of age, a physician, who was suffering from epithelioma of the larynx, on June 28th. October 3d he was brought before the members of the Faculty and the class in Surgery, and the exhibition was certainly an astonishing one. He seemed in perfect health, and talked, breathed and ate, using his mouth like an ordinary individual, although all the larynx, a portion of the tracheal tube, and the uvula had been removed. These functions were performed by means of a very ingenious artificial larynx, the invention of a pupil of Billroth. It consists of two silver tubes, locking together at the centre, which when joined present this general contour: —⌒— Each arm of this improvised illustration may represent one of the tubes, and at the central part, which is opposite the opening in the trachea, an oral plate may be imagined. One tube is thrust up into the opening of the pharynx, and the other down into the trachea. When an external opening in the circular plate is closed by a stopper, which is under the control of the hand of the patient, he breathes through the tubes and pharynx. When this is opened he breathes through the tracheal opening. When he eats, the artificial larynx is in this latter condition. The tubes being closed, the food cannot pass down the trachea, but must slip down the esophagus, thus obviating the necessity for an epiglottis. There is also an artificial esophageal opening, and he may be fed through this if for any reason he does not choose to place the food in his mouth and use the artificial larynx.

When he desires to talk, the stopper at the centre of the apparatus is removed, and a piece of mechanism containing a reed like that of a melodeon is inserted. The air from the lungs passing over this causes vibrations, which are modulated by the oral muscles. It is, in fact, an artificial vocal cord, and with it the speech is as distinct and as perfectly articulate as that of the normal vocal organ. Of course it is entirely a monotone, for there is but one vibrating organ, and there can be no change of pitch in the tone. But the same is the case with the ordinary jewsharp, to which the action of this may be compared, yet all the effects of a change of pitch are simulated

by the use of the oral muscles, especially the buccinators. Certainly, the articulation of the subject of this operation is very surprising, and as a musical instrument the single reed of the apparatus is capable of effects to which those of the one violin string of Paganini bore no comparison. By using the appliance without the reed the patient is enabled to whisper very loudly, for in whispering the vocal cords take no part.

After the operation the man was fed for three weeks by means of a rubber tube, which was thrust through the wound, down the esophagus into the stomach, but since that time he has been able to take food through the mouth. All the changes in the apparatus are made at the external opening, and the whole is removable at pleasure. Unless the chin be raised nothing unusual is observable, for the oval plate, less than an inch in diameter, is hidden by a high collar. The patient is a great lover of tobacco, and one of his principal gratifications is that he is now able to chew and smoke at pleasure, without danger of a recurrence of the epithelioma—at least in the larynx.

THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

As an item of "Current News," we publish the programme issued by the First District Dental Society for the current society year. It will well repay the careful study of the members of other professional societies, for in it may be found a key to the success of one of the best of our professional organizations.

The first thing to be noted is the fact that the whole programme for the year is made out and published in one circular. Thus all the work of the society is brought to the notice of the members and the profession, and a chance is afforded to see what is accomplished as a whole. An opportunity is also given for members to prepare for a coming meeting some time in advance, and to make notes of cases in practice and of instances from their reading for presentation at the proper time. Something illustrative of a subject that is to be discussed, perhaps months ahead, may be encountered and entered in the appointment book or diary under the proper date, and thus its presentation will be assured. Essayists have abundant time for the study of their subject, and better papers will be secured. Visitors, and those who can attend only occasionally, will be enabled to select the

time for their attendance, and to be present when subjects in which they are particularly interested will be considered. The heaviest work of the committees having been thoroughly done in advance, they will be enabled to give more attention to details, and will be spared the great annoyance of running around at the last moment to secure essayists and speakers, who can at best, under such circumstances, be but illy prepared for their duties. In short, the advantages of laying out the work and publishing the programme early are manifold, and must certainly result in successful meetings.

A glance at the list of essayists gives another insight into the reason for the success of the society. The speakers are chosen from among the foremost men of the profession. They are not selected from the city of New York alone, but wherever a man is found who has made unusual progress in any special department, his knowledge is placed at the disposal of the members. The whole professional field is ransacked to find those who have something worthy to offer to the society. Every facility for the illustration of the subject is afforded, and when the discussion comes the essayist is sure that it will be intelligently debated.

Some idea of the strength of the society will be gained, when it is known that at the October meeting more than one hundred and fifty members and visitors were present.

We hope that this society will continue to make the meetings better and better, from year to year, and that they will give their proceedings the widest publicity. Their sayings and doings belong to the whole profession. As representative men they have no right, either professional or moral, to keep back their rich stores of experience from any dentist who desires instruction, and we are sure that they do not desire to deny to any humble member of the profession the light which he sorely needs for his illumination.

OUR BOOK TABLE.

QUIZ QUESTIONS. Course on Dental Pathology and Therapeutics, Philadelphia Dental College: By PROF. J. FOSTER FLAGG, D. D. S. Answered by William C. Foulks, D. D. S. Third edition, revised and enlarged. Philadelphia: The S. S. White Dental Manufacturing Company, 1885.

The world has a liking for the sententious. Pithy, terse, laconic sayings, apothegms, aphorisms, axioms, will be treasured in the

memory when the learned and ponderous treatises are forgotten. Proverbs do not always give the whole truth, but what they do tell is in such a compact form that it is ever before the mind's eye. The pointed, expressive questions in the book under notice, with the brief but significant answers, convey a world of information. Like a dictionary, there is an immensity of reading matter, though it is not always connected. It would be impossible to cover, in the ordinary exegetical manner of writing, a tithe of the subjects concerning which this book gives information.

We are not an adherent of the pathological theories of Prof. Flagg, nor are we always clear concerning his scientific accuracy; we think he sometimes confounds cause with effect, and takes narrow views of many broad questions. He is, in our opinion, too apt to seize a single phase of a subject, and from it draw definite conclusions which are at variance with the matter as a whole. But no one ever denied that he was an earnest and vigorous thinker, or that he had not the courage of his convictions, and did not express himself in a clear, concise, and energetic manner. He is emphatically one of those writers whom we delight to read—and to differ with. The general tone of the book is as positive, as incisive, as is Prof. Flagg himself, and a careful study of it will benefit any thinking man. Of its popularity, the three editions found necessary to supply the demand are quite sufficient evidence.

The publishers have issued it in a very handsome manner, blank leaves for annotations being left opposite each page. The typography is delightfully clear and readable.

Vernon Galbray, or the Empiric. The History of a Quack Dentist. Second edition. London: E. T. Whitefield.

When this book was first published it received a great deal of attention at the hands of the dental profession. Nor has the interest in it yet died out. The copies have been carefully hoarded until it is almost impossible to find one of the original edition. It was published anonymously, but to-day it is no secret that it was written by that Nestor of professional journalism, Felix Weiss, L. D. S., of London. The narration is singularly clear and well sustained, and it details all the artifices and chicanery to which charlatans resort to obtain practice. It is entertaining reading for a dentist, for some of the devices to which the hero of the tale had recourse are very ingenious indeed.

Notes from a Dentist's Case-Book. By Felix Weiss, L. D. S., R. C. S. Reprinted from *The British Journal of Dental Science.* London: J. & A. Churchill.

This little work, first printed some years ago, is what its name indicates—notes upon cases in actual practice, by a close observer and a concise and lucid writer—one who has the faculty of seizing upon the salient and material points of a practical instance, and drawing from them the moral which they should teach. Many of the cases detailed may be studied with great profit.

Letters of a Mother to a Mother on Children's Teeth. By "Mrs. M. W. J." Third edition, revised and enlarged. Philadelphia: The Welch Dental Co., 1885.

We have, before this, expressed in an unmistakable way, our approval of these letters. We can say nothing in addition to our words of commendation of the former edition of this valuable little work. The readers of the Independent Practitioner, in almost every number for some time past, have had ample evidence of the talent which the author possesses for catching the striking points in a dental essay or discussion, and that same faculty has enabled her to present in this book those vital facts which it is so essential for all mothers to know. This edition is a great improvement upon some of those previously issued, and does its enterprising publishers credit.

Scientific Adaptation of Artificial Dentures. By Dr. C. H. Land, Detroit, Mich.

This gives the author's views of the philosophy of the adhesion of suction plates, with directions for making a successfully fitting denture. It also contains some very useful hints for laboratory practice.

The Medical Press of Western New York.

We have received the first number of a monthly journal with this name, to be published in Buffalo by an association of medical practitioners. It will be edited by Roswell Park, M. D., Professor of Surgery in the Medical Department of the University of Buffalo, assisted by Prof. M. D. Mann, of Buffalo, Ely Van De Warker, M. D., of Syracuse, and W. J. Harriman, M. D., of Rochester.

The first number gives promise of unusual excellence. Not only is it a very handsome journal, but the articles which it contains are

of a very high order of merit. Prof. Park is unusually well qualified for his position. He is not only a terse and vigorous writer, of great learning and enthusiasm, but he has also had valuable editorial experience, having formerly been the editor of that sterling journal, *The Weekly Medical Review*. *The Medical Press* starts off with the brightest prospects, as the association which publishes it is composed of about one hundred physicians, all of whom have made cash subscriptions to a permanent fund for its sustenance. There is no doubt that it will at once assume a high place in medical literature. Intending subscribers should address A. M. Barker, M. D., 137 West Tupper St., Buffalo, N. Y.

We have also received the following books and pamphlets:

Transactions of the Michigan Dental Association. Twenty-ninth and Thirtieth Annual Sessions.

Quarterly Bulletin of the New York Post-Graduate Medical School and Hospital. Aug., 1885.

The Therapeutics of High Temperatures in Young Children. By William Perry Watson, A. M., M. D. Reprinted from *The Archives of Pediatrics* of September, 1884.

An Address on Cholera Infantum. By William Perry Watson, A. M., M. D. Reprinted from *The Archives of Pediatrics* of August, 1885.

Tracts on Massage. Translated from the German of Reibmayr, with notes, by Benjamin Lee, A. M., M. D., Ph. D.

Shadows in the Ethics of the International Medical Congress. By Levi Cooper Lane, A. M., M. D.

Brow Presentation. With Reports of Cases. By Eli H. Long, M. D. Lecturer on Special Therapeutics, University of Buffalo. Reprinted from the *American Journal of Obstetrics* of September, 1885.

Address of the State Board of Health of the Commonwealth of Pennsylvania.

Voice in Singers. Read before the Ohio State Medical Society, by Carl H. Von Klein, A. M., M. D.

Clinical Notes on the Local Treatment of Disease. A record of Practical Therapeutics. By Charles L. Mitchell, M. D.

Tabular Statistics of One Hundred Cases of Urethral Stricture treated by Electrolysis, without relapse. By Robert Newman, M. D. Reprinted from *The New England Medical Monthly.*

Duty of the State toward the Medical Profession. By Conrad George, M. D. Reprinted from *The Physician and Surgeon* of July, 1885.

Notes on the Use of Cocaine in Hay Fever. By Robert Bartholow, M. D., LL. D.

Report of the Proceedings of the Tennessee State Board of Health, 1885.

Second Annual Report of the Iowa State Board of Dental Examiners.

Das Fullen der Zahne mit Gold, etc., nach deutscher methode. Von Wilhelm Herbst, Zahnarzt, in Bremen.

A number of New Medical Journals have been received, which will receive notice in due time.

Current News and Opinion.

FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK.

Officers, 1885–6.

Dr. William Carr, *President.*
Dr. J. F. P. Hodson, *Vice-President.*
Dr. B. C. Nash, *Secretary.*
Dr. Charles W. Miller, *Treasurer.*
Dr. J. B. Littig, *Librarian.*

EXECUTIVE COMMITTEE.

Dr. W. W. Walker, *Chairman,* Dr. A. L. Northrop, Dr. C. E. Francis.

CLINIC COMMITTEE.

Dr. C. F. W. Bodecker, *Chairman,* Dr. H. H. Atkinson, Dr. F. H. Lee.

BOARD OF CENSORS.

Dr. A. L. Northrop, *Chairman,* Dr. E. A. Bogue, Dr. W. A. Bronson, Dr. C. A. Woodward, Dr. Frank Abbott.

PAPERS TO BE READ BEFORE THE FIRST DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK, 32D STREET AND BROADWAY, NEW YORK CITY, 1885–6.

Tuesday evening, May 5th, 1885—Dr. G. W. Weld, "Chloroform and the Fifth Pair of Nerves."

Tuesday evening, June 2d—C. E. Francis, D. D. S., M. D. S., "Cleansing Teeth."

Tuesday evening, September 22d—Wm. H. Atkinson, M. D., D. D. S., "Pyorrhœa Alveolaris."

Tuesday evening, October 6th—C. Heitzmann, M. D., "Microscopy as a Guide in Practical Dentistry."

Tuesday evening, November 3d—J. N. Farrar, M. D., D. D. S., "Mechanical Appliances for Correcting Irregularities of the Teeth." Blackboard Illustrations.

Tuesday evening, December 1st—Edwin T. Darby, M. D., D. D. S., Professor of Operative Dentistry and Dental Histology, University of Pennsylvania, "Erosion of the Teeth; its Cause and Treatment."

Tuesday evening, January 5th, 1886—S. H. Guilford, A. M., D. D. S., Professor of Operative and Prosthetic Dentistry, Philadelphia Dental College and Hospital of Oral Surgery, "The Band Matrix and its Uses."

Tuesday evening, February 2d—Frank Abbott, M. D., Professor of Operative Dentistry and Dental Therapeutics, New York College of Dentistry, "The Treatment of Pulpless Teeth."

Tuesday evening, March 2d—John J. R. Patrick, D. D. S., Bellville, Ill., "Progressive and Retrogressive Physiological Metamorphosis of the Jaws and Teeth."

Tuesday evening, April 6th—Election of Officers.

In addition to the regular meetings, a number of special meetings will be held, at dates fixed later, when clinics and papers will be given by the following gentlemen:

Clinic and Paper—Dr. Wm. Herbst, Bremen, Germany, "Inventor of Herbst Method of Filling Teeth."

Paper—M. Whillden Foster, M. D., D D. S., Professor of Dental Mechanism and Metallurgy, Baltimore College of Dental Surgery. "Abnormal Conditions of the Antrum and Restorative Treatment."

Clinic and Paper—Dr. H. C. Register, Philadelphia.

Clinic and Paper—Dr. E. Parmly Brown, Flushing, L. I. "New Porcelain Bridge and Crown Work."

A lecture on Facial Expression, by a very eminent Sculptor of New York City, illustrated by Clay Modeling, Prehistoric Skulls, etc., etc.

FOREIGN BODIES IN THE ANTRUM OF HIGHMORE.

Dr. Mulhall presented three foreign bodies which he had removed from the antrum of Highmore of a lady, aged 23. Having diagnosed the case as one of purulent catarrh of the antrum of the right side, he sent her to a dentist with instructions that the first molar tooth be extracted and a gold tube be made with a clasp which would fit around the first bicuspid so as to keep it in place. She went to the dentist and had the tooth extracted, and he bored through the alveolus a proper opening into the antrum and washed out a quantity of fetid pus, but she stated that she did not think she could afford the tube. She went home and her husband undertook to make a tube that she could put into the antrum. She at once began to improve, and was getting along quite well under the use of carbolic acid and iodine washes, when the plug suddenly disappeared. Her husband a second time undertook to wash the antrum, and put in a hard rubber plug to keep the opening patulous till the next washing. Some two months after, this also disappeared. After the first six weeks the discharge had not been purulent, but when she got these foreign bodies in, the discharge again became offensive in character. As it was pretty evident that foreign bodies were in the antrum, he concluded to operate for their removal. The second molar had been removed, and so had the second bicuspid. First, separating the cheek from the jaw-bone as much as possible, avoiding the infra-orbital artery and cutting back as far as he could where the wall of the antrum is thinnest, and where there is most space to see into the cavity, he made, with a chisel, an incision about an inch long into the antrum above the alveolus and at right angles, far back. He then had an opening about as large as one's thumb. Introducing a pair of forceps he succeeded after some difficulty in removing a hard rubber plug. She said, "Now I know there are two more there, because that is the first one I put in." The doctor was able to see another one, which he removed with the forceps. Searching around for some time he finally found a dark object that

he grasped with the forceps and finally succeeded in getting out. A drainage tube was introduced because he proposed to treat the cavity through the opening he had made. The other opening through the socket of the first molar has closed up. As soon as she recovers he will withdraw the drainage tube and allow the cheek to close the opening.—*Report of the Medico-Chirurgical Society in the St. Louis Courier of Medicine.*

NEW ENGLAND DENTAL SOCIETY.

At the twenty-third annual meeting of the New England Dental Society, held in Burlington, Vermont, the following members were elected as officers for the ensuing year:

President—J. B. Coolidge, Boston, Mass.
First Vice-President—G. A. Young, Concord, N. H.
Second Vice-President—G. F. Waters, Boston, Mass.
Secretary—A. M. Dudley, Salem, Mass.
Treasurer—G. A. Gerry, Lowell, Mass.
Librarian—E. O. Kinsman, Cambridge, Mass.

A resolution was offered and passed that, in the opinion of the members, if an International Medical Congress with a section of Dental and Oral Surgery be not held in this country, an International Dental Congress should be called, and that the New England Dental Society pledges itself to heartily support the enterprise. The delegates elected to the next meeting of the American Dental Society were instructed to act in accordance with this resolution.

NEW JERSEY STATE DENTAL SOCIETY.

The following members were elected as the officers for the ensuing year:

President—W. Pinney, Newark.
Vice-President—A. R. Eaton, Elizabeth.
Secretary—Chas. A. Meeker, Newark.
Treasurer—Geo. C. Brown, Elizabeth.
State Prosecutor—Chas. A. Meeker, Newark.

BOARD OF EXAMINERS.

J. Hayhurst, Chas. W. Meloney, James G. Palmer, Frederick A. Levy.

EXECUTIVE COMMITTEE.

W. Price Richards, Geo. E. Adams, G. Carleton Brown, B. F. Luckey.

A PLAIN TRUTH WELL EXPRESSED.

A too liberal use of italics is an insult to the intelligence of the reader. A correspondent has a two-page article in the September number of —— — ——, in which there are no less than forty-two italicized words. Whether this is the fault of the writer or the editor, we do not know, but, at least, it displays a lack of confidence in the reader, to say nothing of the fact that such means are frequently employed to give prominence to certain parts, so that the reader will not notice the dearth of ideas.—*Salmagundi* (Dr. E. G. Betty) in *The Dental Register.*

EVIDENCES OF PROSPERITY.

The Rumford Chemical Works, Providence, R. I., manufacturers of Prof. Horsford's Acid Phosphate, have recently purchased a commodious building and warehouse near their present location, where they propose to move their business a few months hence. This purchase has been necessitated by the demands of their large and increasing business, and it is pleasant to record such an evidence of well deserved success and prosperity.

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MINNESOTA.

The Minnesota State Board of Dental Examiners will meet in St. Paul, at the Ryan Hotel, Tuesday, the first day of Dec., 1885, for the purpose of examining candidates for admission to practice in the State, and to endorse diplomas. J. H. MARTINDALE,

Secretary.

DELINQUENTS.

We earnestly request those of our subscribers who have not forwarded their subscription fee to do so without further delay. Postal notes are easily procured at the postoffices, which will be gladly received by our treasurer.

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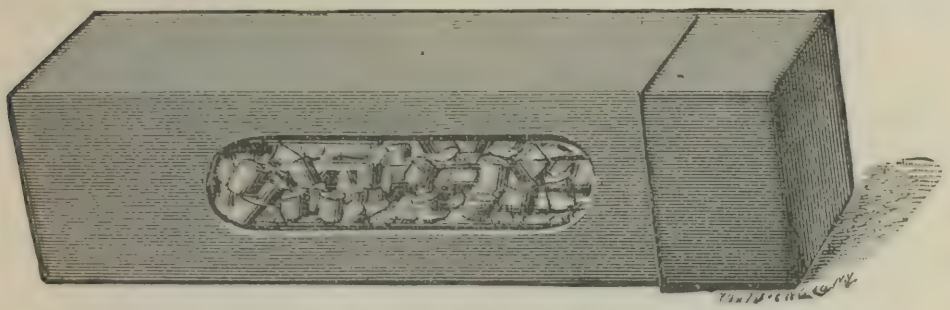
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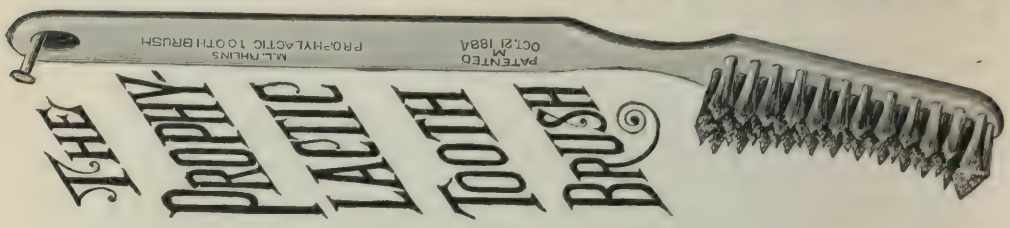
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" C. A. Timme, Hoboken, N. J.
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VOL. VI. DECEMBER, 1885. No. 12.

Original Communications.

DISEASES OF THE PERIOD OF DENTITION.

AN ADDRESS DELIVERED BEFORE THE AMERICAN ACADEMY OF DENTAL SCIENCE AT ITS EIGHTEENTH ANNUAL MEETING HELD IN BOSTON, NOVEMBER 4, 1885.

BY DR. W. C. BARRETT, BUFFALO, N. Y.

Wordsworth truly said—"The child is father to the man,"—and the aphorism is pregnant with a great truth, for it is upon the impressible nature of childhood that the great influences are at work which shall mould, and shape, and determine the character of the young man. We all know how potent are the associations and influences of childhood, and how impossible it is for us, in after years, to divest ourselves of the impressions that may then have been stamped upon us. The habits and customs, the faiths, the beliefs, the superstitions which we may have acquired in manhood, may be laid aside like a worn garment. But the rules, the tenets, the habitudes, the prejudices, the very methods of thought which we acquire in childhood, hold dominion over us till the final end shall come.

It is emphatically true, then, that in the mental world the child *is* father to the man. Nor is it less the fact in the physical domain. As the twig is bent the tree is inclined. As this body of ours, composed of so many separate organs, is trained in infancy and youth, so will it grow up to manhood. Vicious habits of life, early acquired, will cling to us in old age. That intricate piece of machinery, the digestive apparatus, may easily be put out of repair in infancy.

Once fairly regulated and set in methodical motion, it is proof against the results of misuse. The delicate nervous organization, by irregular habits in youth, may become like sweet bells jangled, out of tune and harsh. But the period of youth once passed in perfect health, all the subsequent unnatural drafts of our busy lives will be duly honored.

Old Adam, in Shakespeare's "As You Like It," says:

> "Though I look old, yet I am strong and lusty;
> For in my youth I never did apply
> Hot and rebellious liquors in my blood;
> Nor did not with unbashful forehead woo
> The means of weakness and debility:
> Therefore my age is as a lusty winter,
> Frosty but kindly."

It is the irregularities of youth, and not the excesses of maturity, that strew the highways of life with so many wrecks of manhood.

If then, the human race is to be improved, if particular organs are to be rescued from the results of inheritance or of predisposition to disease, the work should be begun with existence, and hygienic measures must be adopted in early life. The teeth of the human race are the organs which soonest fail, while there are few upon which the comfort of age is more dependent. I could not, then, offer for your consideration at this time a subject of greater importance than that of the teeth during childhood. I shall not consider it from an anatomical or a histological stand-point, but shall confine myself to a physiological consideration of the matter.

The eruption of the deciduous teeth is not of itself a process that should be attended with any very serious disturbances. It is as purely physiological as is the growth of the hair or the nails, to which the teeth, as epidermoid structures, are allied, yet the period of dentition is almost universally recognized as the most perilous of our whole existence. That the dangers and the disturbances which are too frequently the accompaniments are due to the mere eruption of the teeth, I cannot believe. I am rather of the opinion that most of the febrile disturbances and the gastric irritations of the period of first dentition are coincidental, and due to other causes, and it is the object of this paper to examine some of these phenomena, and to trace them to their real cause.

The digestive apparatus undergoes great changes during existence. Not only is the histological structure of the organs different in the infant from those of the adult, but their functional action undergoes important changes. The character of the secretions is markedly different at different ages. Previous to birth, while the fœtus is deriving its nourishment from the blood of the mother through the placenta, the digestive apparatus is mainly dormant, and the different glands, which as yet have not been called into active exercise, provide no digestive and but little of other fluids. The lungs, too, are not as yet exercising their function, and the mother breathes, as she also provides nutriment, for both. But immediately upon the severance of the umbilical cord, or the stoppage of the placental circulation, the first stupendous change of conscious existence takes place.* The blood, no longer purified through the lungs of the mother, must have its separate and individual process for oxygenation, and this change, unlike the previous and subsequent modifications of growth, must be instant, and not gradual.

The circulation of the human embryo has already undergone one change *in utero*. Previous to the formation of the placenta, when the umbilical vesicle was the sole source of nutrition, there was a complete round of the circulatory fluid in the embryo tissues, and that circulation, like that of extra-uterine life, was wholly within itself. The vitellus was the organ which provided the fœtus with nourishment, and the vitelline circulation was that which carried pabulum to the formative tissues. But with the formation of the allantois the umbilical arteries came into existence. As the umbilical vesicle diminished, the allantois enlarged and was changed into a vascular chorion, and a part of this became the placenta which, during the greater part of intra-uterine life, supplied the growing fœtus and carried on its circulation.

These changes were gradual, but at the period of birth commences another circulation. The blood is now almost instantaneously directed to the lungs, which by the first feeble cries of the newly born

* It should be remembered that the first attempt at breathing is involuntary, and succeeds the stoppage of the supply of oxygen from other sources. If a pregnant animal be thoroughly anæsthetized, the uterus opened and the fœtus, it matters little at what period of existence, exposed to the air, there is no attempt at breathing so long as the placental circulation is kept up. But shortly after the severing of the umbilicus the tissues begin to feel the need of oxygen, and there are spasmodic attempts at breathing. If the fœtus be not sufficiently advanced for this it dies of suffocation. But if it can breathe, separate existence at once commences, by the establishment of the pulmonary circulation.

child are inflated with air, and so commences adult circulation. The ductus arteriosus, which, during fœtal life, had conveyed the blood directly from the right ventricle to the aorta, without its entering the pulmonary artery and the consequent pulmonary circulation, now closes up, while the pulmonary artery enlarges, and the blood is forced by the right ventricle through it, and thus independent oxygenation commences by the entrance of the lungs upon the active performance of the function of respiration.

All through these successive changes alterations are going on in the digestive organs. During fœtal life the alimentary canal has become partially filled with an accumulation which has received the name of meconium. The gastric juice is not yet secreted, although the liver provides a very scanty secretion. But at birth the digestive organs are called into active exercise, and provide secretions that are capable of acting only upon the very simple food which must at first be the sole regimen of the newly born child. The saliva is not as yet provided with the ptyaline which, later in life, gives it its distinctive character, nor are the gastric or intestinal juices yet of a nature that permits them to act upon any kind of solid food. Nature has provided the proper pabulum in the milk of the mother, which at first contains the colostrum that shall lead to the expulsion of the meconium which the intestines contain. With the development of the child the milk of the mother undergoes changes which gradually lead up to a stronger diet.

The transitions in the development of the digestive tract extend to full adult life. They are gradual, but they may be divided into successive and well marked stages. The development of the teeth keeps pace with them, and may, in all normal conditions, serve as an unfailing index of the state of advancement of the internal organs. At first there are no teeth, for the condition of the digestive tract is such that it cannot prepare for assimilation any form of solid food. The pabulum must be of the simple, mild character of the milk of the mother, which contains in solution all the nutrient forces needed by the immature organism, and in the exact proportion that nature demands. The substitution of this natural food by any form of artificial food is always more or less disastrous in its results. Nor can an infant of but a few days of age be safely given the milk of a woman whose confinement took place some time previous to

the birth of the child. The milk of such a woman is too highly organized for its immature function. When young calves or lambs are deprived of the milk of the mother, and fed on that of others, who have been in lactation for some time, they do not thrive well. This is even more marked in the human race, because the period of lactation should be longer, and the changes are more gradual.

With the growth of the infant there is a progressive development of the teeth, the incisors appearing first. Too many mothers consider this the period at which the giving of solid food may commence. A greater mistake could not be made. For obvious reasons the teeth are successive in making their appearance, and the fact that the small deciduous molars, which alone are effective in mastication, do not appear until some months after the cutting of the incisors, should teach every mother that it is not until all the deciduous teeth are in position that the diet of the child may with any degree of safety be changed. Up to this time its exclusive food should be the milk of the mother. But with the appearance of the molar teeth the alteration in the digestive function becomes more marked.

It is about at this period that the character of the saliva undergoes a change. The great parotid gland now begins to pour through the duct of Steno, which is directly opposite the molar teeth, a fluid that has distinct parotid qualities. Did time allow, I should be glad to enlarge upon the peculiar properties of this parotid fluid, as distinguished from that of the other salivary glands. It must suffice to say that it is peculiarly fitted to so change the character of some foods as to be essential in their proper preparation for the digestive fluids, and that it is poured out in great quantities during the process of mastication in the precise place, where, if the molar teeth be present, it may be thoroughly mixed with the bolus, previous to deglutition.

The full development of the deciduous molar teeth, then, marks an important era in the growth of the digestive organs, and is an indication that they are sufficiently advanced to receive a diet of greater consistency. Succulent vegetables may now be digested, but the character and size of the teeth show that they are intended only for very light use, and that they, as well as the stomach and intestines, are not as yet fitted for the more highly organized animal foods.

With the continued growth of the general system of the child, the digestive tract progresses in efficiency, and the time approaches when it is prepared to assimilate pabulum of a yet more advanced character, and nature with careful hand is preparing the organs for the proper preparation of this food. Another and a larger molar makes its appearance—the largest tooth with which it is to be provided—and now for the first time the dental organs, and coincident with this the digestive organs, are sufficiently advanced to receive animal food of a simple character, and the more dense of the vegetable pabulums. As growth continues, the diminutive and feeble deciduous teeth are replaced by larger and stronger ones, until, when the age of about twelve years has been reached, the dental structure is complete, and the alimentary canal has reached a period of development that fits it for the digestion and proper preparation for assimilation of any food that is fit for alimentation.

The development of the whole body, if we except certain special organs, has thus advanced by regular gradations. Not entirely by imperceptible growth, for, as in inanimate nature, there are periods of pushing energy, and others of comparative rest. It is by alternation of rest and effort that all organic changes occur. But the general advance of the system is along the same line, and in studying the development of any one organ, or set of organs, it is necessary to consider their relation to the growth of other organs. "To regard the eruption of the teeth as the sole factor in the general process known as the first dentition, is to perpetrate a kind of medical synecdoche. Children get their first teeth because they are at the same time getting a second stomach and second intestines."*

It may thus be seen that the condition and growth of the internal organs of digestion may be accurately gauged, and their capabilities for work exactly determined, by the state of dental development. If, previous to the appearance of the teeth fitted for its perfect mastication, any special food be given the child, it cannot be digested, but must act as an irritant, provoking all kinds of gastric and febrile disturbances, thus not only delaying the progressive development of the alimentary organs, but actually causing their deterioration and the destruction of their functional powers.

To my apprehension it is from the lack of the knowledge of this developmental progression, or from willful disregard of the lessons

* Pediatric Aphorisms. Prof. Letamendi. INDEPENDENT PRACTITIONER, October, 1884, page 591.

which it so plainly teaches, that the most of the so-called diseases incident to teething arise. As I have said, the growth and eruption of the teeth is a physiological process. If they be accompanied by any pathological conditions, these are due to extraneous and ordinarily preventable causes. It is to errors of diet that they should usually be ascribed, and not to the mere advancement of normal organs. An excellent authority says: "While not denying that certain minor evils may attend the evolution of the teeth, it is doubtful if many of the more serious ailments, often accompanying this process, have any dual connection with it." *

Another writer upon the same subject says: "Dentition is usually held to be the cause of many ailments, but to what extent it is really so is doubtful. The time of dentition is one of transition. A uniform and bland diet is changing for one of greater variety, and the febrile attacks, diarrhœa and vomiting, which are so rife at this time, are more satisfactorily explained by indigestibility of food than by some occult influence of tooth-cutting."†

Dr. Edward Henoch, of Berlin, says: "In the opinion of a majority of physicians teething is a physiological process, that cannot give rise to any morbid phenomena." ‡

Another competent authority says: "No doubt during the cutting of the teeth, the bowels generally are in a state of irritability, for we know that at these periods the follicular apparatus of the intestines is undergoing considerable development." §

The so-called diseases incident to teething are mainly gastric disturbances. The period of greatest fatality corresponds very nearly with the time of the eruption of the teeth, because it is about this time that most mothers commence a change of diet for the child. With the appearance of the incisors solid food is given. The infant, with the instincts of nature, rejects it, but the mother persists until a taste for unfit food is acquired, very much as an appetite for tobacco is perhaps obtained in later years. At first, the amount ingested is insufficient to produce serious consequences, and as larger amounts are taken a diarrhœa of no alarming kind manifests itself. The appetite for unfit solid food increases with its gratifica-

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* Archives of Pediatrics; June, 1885, page 380.

† Goodhart. Diseases of Children. Page 28.

‡ Edwards. Therapeutics of Diseases of Children. Page 105.

§ Eustace Smith. Wasting Diseases of Infants and Children. Page 67.

tion, and soon febrile symptoms supervene. The child becomes exceedingly restless. The milk which it takes is regurgitated—perhaps there is vomiting of some curdled milk—the diarrhœa increases, and the discharges have an excoriating effect, until finally digestion stops and the child dies of inanition, or perhaps convulsions ensue, one of which proves fatal. And yet it will be said that the child died from teething, when dentition was progressing naturally, the gums were not swollen or tender to the touch, and there was no indication of any reflex nervous irritation.

Do not understand me as insisting that delayed dentition may not induce a train of symptoms somewhat analogous to these, but when fever and a slight diarrhœa are due to this cause, the diagnosis should not be difficult. In this case the disturbance will not be functional, but of a nervous character, and the gums will give timely indication and warning of the impending trouble. In by far the greater proportion of the diarrhœas, and the gastric forms of the diseases of young children, I am confident that a careful examination of all the attending circumstances will find that they are due solely to errors of diet. In my own clinics at the Medical Department of the University of Buffalo, I have scarcely met a case in which it was necessary to give the advancing teeth any alleviation whatever. Children have been presented for lancing of the gums, by mothers who were confident that all the little one's ailments were due to the cutting of its teeth. The family physician had perhaps told them so, but an examination of the mouth almost invariably found the gums in a healthy condition, and the teeth progressing normally. No child was ever yet presented at my clinic whose food was exclusively the milk of a healthy mother. But I have frequently seen them when their stomachs were distended by the products of the indigestion of food that was lying, an absolute foreign substance, within them. Consider, gentlemen, what is your own condition when suffering from the eating of improper food, and then think what must be the state of a little helpless infant, with all its susceptibility to malign influences. Its stomach is loaded with that which cannot be digested. The presence of the mass is intolerable to the organism, and it must be eliminated in some way. Nature hangs out the signal of distress in the form of a rise of temperature, and a general febrile condition, if it be not vomited up. The mass acts as an irritant, producing a violent motion of the coats of

the stomach, and it is perhaps passed through the pylorus into the intestines, where it produces increased peristaltic action, and so is hurried through, leaving the whole digestive tract in such an inflamed and angry condition that a diarrhœa of some days' existence is the natural sequence. This is repeated time and again, until a chronic condition of irritation ensues and the child dies of the exhaustion consequent upon it. Or, perhaps, the undigested food remains in the stomach, the powers of the child having been so exhausted by previous struggles that the mass cannot be eliminated. In this case convulsions will probably end the scene, and if one or two teeth be, as they usually are at this period of life, just making their appearance through healthy gums, they will be charged with the untimely death.

A thoughtful writer in one of our journals says. "I do not ignore the potent agency of the various meteorological changes in the causation of these fatal diseases in the infant, but I am convinced that many more children would be saved during such changes if more attention were paid to alimentation as a prophylactic measure. Experience has taught me that in those families where I was allowed to regulate the food of the infant, and where there was no departure from the rule laid down, the children passed through a very hot summer without being subjected to the ailments which are so disastrous to early life. If, however, parents are permitted to use their own judgment, or permit themselves to be influenced by the whims of some motherly neighbor, who scoffs at the present scientific dietary and boasts that she has reared a family of twelve children, and fed them 'from the table' when they were babies, then the physician might as well pursue the 'let alone plan' with almost a guarantee that his services will soon be required to pacify nature offended by a supper of bacon and cabbage." *

I have said that delayed dentition may produce symptoms that closely simulate those consequent upon improper feeding. How shall we distinguish between the two? Parents will consult us upon the advisability of lancing the baby's gums as a cure for its restlessness, pain and diarrhœa. It is important that we be able to set the family physician right, if he be wrong, and to determine with certainty whether there exists a necessity for the dentist's services. It

* S. S. Adams, M. D. "How Shall We Feed the Baby." Archives of Pediatrics, May, 1885, page 270.

is as essential that we know what to avoid, as to tell what to do. If we can demonstrate to the anxious mother that we fully comprehend the situation, we shall gain her respect and confidence, and she will be likely to heed our admonitions regarding other dental troubles.

A correct diagnosis can only be made with certainty after a very careful examination, not only of the child itself and the attending symptoms, but of its past history, its sanitary environments, and its diet. The age should be accurately determined, that it may be seen whether the dental development corresponds with that of the general system. This is important, because it is not infrequent that morbid conditions are ascribed to teething when the teeth due at the time are all in place. A medical journal reports a case of infantile palsy in a child more than three years of age, as due to teething. Both legs were cold and powerless. There was sufficient irritation of the gastrocnemius muscles to cause a permanent contraction, thus producing a kind of talipes equinus.* Nothing is said about the state of forwardness of the dentition, but unless it was unusually delayed, the physician in this case, as is too often done, jumped at his conclusions, and ascribed to teething a trouble that had a deeper origin.

The condition of the gums should be carefully noted. If they are normal, without any special inflammation or thickening, and if on the other hand they be not unduly tense and glistening, we should look elsewhere for the source of the irritation. It should be remembered that the gum is naturally very hard and dense, from the large amount of fibrous tissue in it. Normal growth, when the tooth is near the point of emergence, will find the gum whitish, glistening, and tense in appearance. There may be such a condition of impermeability, of toughness and hardness in the gum, that the advancing tooth is retarded thereby, and hence undue pressure is brought to bear upon the, as yet, insufficiently protected pulp, thus inducing reflex nervous disturbances, but I believe this condition to be comparatively rare. Unless there be constitutional and general disturbances that seriously interfere and require immediate attention, the tooth easily makes its way through the gums, by their absorption under the slight but continual pressure of the growing tooth. Should the contrary be the case, the remedy is a simple one;

* Medical Bulletin, June, 1885. Page 196.

a crucial incision with the lancet over the point of the tooth, which will be easily detected, will give it egress, and the operation will be a painless one.

The general symptoms attendant upon this unusual condition will be of a nervous character. The child will have periods of irritability, and they will be paroxysmal in character. It will suddenly awake from a sound sleep with a frightened cry. There will be spasmodic twitchings of the muscles, more especially of the face. It may give indications of earache. Its eyes will probably be watery, or possibly gummy. It will desire to bite upon hard substances, which will give it pain and cause it to cry out. Later on, however, this will change, and it will fear the contact even of the finger with the gums. There may be an increased or a diminished flow of saliva, or it may at one time be streaming from the mouth, and at another all the oral tissues may be parched and dry. All these symptoms will be, as before stated, paroxysmal in their nature, and it is this peculiarity which especially marks the condition. The bowels may be very irregular, or they may not be particularly affected. Sudden watery discharges may be succeeded by constipation. Their condition offers no very clear indication of the real cause of the trouble, for they may be in a comparatively normal state, unless there be gastric disturbances due to other causes.

A simple lancing of the gums over the advancing tooth, with the administration of a mild anodyne, will be all that is necessary. A four per cent. solution of the muriate of cocaine may be rubbed upon the gums, and this will afford a present relief, and by its action upon the terminal filaments of the nerves will frequently stop the muscular twitching, if this be present. Or the following lotion may be prepared and the gums bathed with it:

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Hydrochlorate of Cocaine,	grs.	iss.
Tinct. Saffron, -	gt.	x.
Syrup Simp., - -	ʒ	iiss.

I would advise a sparing use of the lancet if it be necessary to resort to it at all. The incisions need not be extensive, and they cannot be very deep, nor should they include the gum over teeth that are not manifestly retarded by actual pressure.

There is another and yet rarer condition of the oral tissues of teething children, that is of a more formidable character. It is

when the teeth are slow in their development, when they are retarded and roughened through constitutional or general derangements, and thus become a long continued source of irritation. The gums are then turgid, inflamed, thickened, abnormally vascular and tender to the touch. It will be remembered that in a healthy state they are the direct opposite of this; that they have but a limited blood supply, few nerves, have comparatively little sensation, and are hard, smooth, light in color and glistening in appearance. The abnormal condition to which I refer is easily recognizable at a glance. The salivary secretion is largely increased. The inflammation and redness extends into the pharynx, and finally down the alimentary canal to the stomach, producing gastritis, and an irritating, exhaustive diarrhœa. If the sanitary conditions be bad and the food of an improper character or insufficient in nutritive power, the disease assumes the type of a malignant stomatitis, or even of cancrum oris. The tissue of the gums becomes ulcerative, and sloughing ensues. The child becomes excessively debilitated through its inability to take nourishment, and from the diarrhœa which accompanies the condition there is a general malaise. The mouth is hot, the tongue coated, the breath offensive, the urine is high in color and scanty, and all the tissues of the body sympathize in the disturbance.

That these symptoms may possibly be induced by delayed and vicious dentition, assisted and aggravated by bad sanitary conditions, I believe to be indisputable. I have seen some of these in a boy of fourteen years of age, brought about by retarded eruption of the cuspids, for it is not alone the cutting of the deciduous teeth that may induce serious disorders. Henoch says that he "considers dentition, both first and second, to have much to do with their occurrence."*

The first remedial measures in these diseases should be directed toward the general system. Bad sanitary conditions should be remedied and the strictest hygienic treatment instituted. The diet should be carefully regulated, and a moderate cathartic, followed by pepsin and dilute muriatic acid be given, if there be great digestive disturbances. If the symptoms are mainly oral, chlorate of potassium and muriatic acid should be given. The following local mouth wash may be used every hour :

* Goodhart. Diseases of Children. Page 88.

Potass, Chlorate,	gr.	x.
Aqua Dist.,	f℥	i.

I have frequently, in analogous conditions, seen the happiest results from the use of Listerine one part, water ten to twenty parts. If there be ulceration, the surfaces of the ulcers should be swabbed with a saturated solution of permanganate of potassium.

When the condition of the mouth and the general system will warrant it, surgical interference may be demanded. A careful examination, with due consideration of the age and state of development of the other teeth, will enable the judicious surgeon to determine what tooth or teeth may be delayed and acting as the irritant. Under the influence of an anæsthetic, if necessary, or five minutes after painting the gum over with the fluid extract of Cannabis Indica, deep incisions should be made over the point of the delayed tooth, and the gum dissected back a little until its exact condition can be determined. If it be bound down by adhesions, these should be cut. If the tooth be presenting abnormally, or if it be so impacted that its development will only aggravate the existing difficulty, it may be necessary to extract it, but these are conditions that it is not my present purpose to discuss. Impacted teeth usually bring about a train of symptoms quite distinct from those enumerated, and they require radical surgical interference. I am not speaking of anatomical anomalies, but of those pathological conditions which may accompany the eruption of normal teeth. It will usually be sufficient, in the inflammatory condition considered in this paper, to make deep and free incisions down to the offending tooth or teeth, and to cut or bur away any roughness of the surface that may be causing the irritation. I had occasion not long since to thus smooth the surfaces of two first permanent molars, whose enamel upon the crown was almost like a coarse wood rasp.

I have spoken of retarded dentition. This may occur because of a general lack of development, the teeth simply keeping pace with the growth of the rest of the body. There are but few constitutional diatheses which interfere with dentition. In inherited syphilis and in tuberculosis, the teeth are usually cut early. In chronic diarrhœa and in the weakness caused by improper food, the development of the teeth goes on uninterruptedly. There is but one disease in which general nutrition is affected, that seriously interferes with tooth growth, and that is Rachitis. Whenever the child is

attacked by this, then development of the teeth is arrested. Eustace Smith says that this influence is peculiar to rickets. "If the disease makes its appearance before any of the teeth are cut, their evolutions may be almost indefinitely postponed. If some teeth have already appeared, the further progress of dentition is interrupted."*

It may not be unprofitable to glance at the symptoms attendant upon an improper diet, and which are in my opinion the usual cause of the so-called diseases incident to teething.

Diarrhœa is the most common of infantile diseases,and it is usually one of the first symptoms of a deranged nutrition. There are three elements which tend to produce this condition :

1st—The nervous reflex of dentition.

2d—Improper feeding.

3d—The unusual heat and moisture of the particular time of the year in which these attacks usually occur.†

I believe that the first of these is much less often a cause than is usually imagined, but it cannot be altogether excluded. The third undoubtedly has its influence, but by far the greater number of cases of diarrhœa in children may be directly traced to errors in diet. At the age of eight or nine months, when the incisor teeth are making their appearance, most mothers and nurses commence the giving of more solid foods. The period is one of unusual peril, for it is one of transition. There are eras during which unusual progress is made, and the time of dentition is one of them. The young child is then peculiarly subject to disorders of many kinds; not as a consequence of the eruption of the teeth, but as a part of a general activity of growth and development, to which dentition and morbid phenomena both in a sense respond.‡

At this critical period new articles of food, which the undeveloped nutrient organs are powerless to digest, are introduced into the stomach, and a portion passed into the intestines. Within a few hours the symptoms of indigestion are manifested. Perhaps there may be nothing more formidable than flatulency and colic of a mild character. Or there may be vomiting and purging for some days, with but little of febrile disturbances. If the bowels be not

* Wasting Diseases of Infants and Children. Page 97.

† The Summer Ailments of Teething Children. Judson Bradley, M. D. Detroit *Lancet*, October, 1885. Page 153.

‡ Goodhart. Diseases of Children. Page 29.

relieved the child becomes pallid, and is fretful and restless. A slight rise of temperature may be observed, and it is thirsty and will drink large quantities of water. The mouth is dry, the tongue red and furred, and its papillæ prominent. The evacuations become more frequent; they are liquid and perhaps green and offensive. Then the temperature suddenly jumps to 101° or 103°, and the evacuations become colorless, profuse and watery, with a sickening odor, or perhaps they assume a pinkish color. These symptoms may be succeeded by a sudden collapse, the temperature falling rapidly, and death ensue at but a few hours' notice. All these are the possible attendant symptoms upon a simple diarrhœa, the result of injudicious feeding, or they may follow as a train succeeding it. It will be seen that they vary, in important particulars, from those given as the results of reflex nervous irritation arising from the presence of an unrelieved, advancing tooth, and from those attending the inflammatory state of the gums due to roughened, unerupted teeth. It is important that the varying conditions be kept clear in the mind, that remedial measures may be properly directed.

Cholera infantum has been by some authors classed as one of the diseases due to teething. It would seem that a little reflection should show the fallacy of this theory. It is not necessarily confined to the teething period, nor are the symptoms such as would lead one to infer dental reflex nervous irritation. A debilitated system, unhealthy sanitary surroundings, and an existing, or even a recent, gastro-intestinal irritation, are the contributing or predisposing causes, while a continued high atmospheric heat, or sudden changes in a moderately oppressive temperature, and sudden changes in the diet, are usually the exciting causes.*

A healthy infant is suddenly seized with profuse purging and vomiting. The skin becomes moist and cold, the features assume a leaden pallor, the eyes are sunken, the fontanelles depressed, and the symptoms of an Asiatic choleraic collapse are present. It is from its resemblance to this latter disease that it derives the name of cholera infantum.

Malarial fevers are sometimes mistaken by the unthinking attendant for disturbances of teething. There will be vomiting and pain

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* Cholera Infantum. William Perry Watson, M. D. Archives of Pediatrics, August, 1885. Page 451.

in the epigastrium, indigestion, with nausea and diarrhœa, sore throat arising from pharyngitis or tonsillitis, coryza, and some febrile symptoms. These indications need not, however, be mistaken for true cases of difficult dentition. It should be remembered that, in infantile malaria, the chill and sweating stages are always absent.*

Stomatitis, thrush, and cancrum oris are diseases of the oral cavity that have no direct connection with dentition, though a condition simulating them may rarely be seen as the result of ragged, roughened, retarded teeth. Acute stomatitis is usually distinguished by a very offensive breath, and the spitting of bloody saliva. The pillow at morning will frequently be found stained with blood. It usually takes the form of a superficial ulceration of the edges of the gums, tongue and buccal surfaces, the gums being very vascular and covered with yellowish, deteriorated granulations. Sometimes it appears as widely distributed apthous ulcers.

Thrush is a fungoid growth, which may be found upon the mucus membrane of the mouth. This fungus has received the technical name of *Oidium Albicans.*

Cancrum oris appears as a hard, indurated swelling in the cheek. This rapidly degenerates, extends and becomes gangrenous, eating its way through the soft tissues and destroying all within its reach. These last three conditions are usually found in ill nourished children, with bad sanitary surroundings, and a lack of hygienic precautions.

There is one other disease to which I will direct your attention, and which in certain circumstances may be mistaken for dental disturbances. I refer to infantile convulsions. These frequently simulate the epileptic convulsions of older people. The child will scream or cry violently before the fit, when it becomes unconscious, with tetanic spasms. Sometimes there is a tremor in the sleep, twitching of the lips, sudden startings, the thumbs or toes rigidly flexed, with convulsive movements of the eyelids. These may resemble the reflex nervous spasms sometimes caused by tooth pressure, but the nice observer will be enabled to distinguish them through exclusion, and by noting whether they be general in character, or confined more especially to the connections of the trigemini.

Experience and careful examination will enable one to distinguish

* Malaria in Children. J. P. Kingsley, M. D. *Courier of Medicine*, August, 1885. Page 103.

the comparatively few instances of general disturbances caused by dental irritation. You have already learned that, in my own opinion, these cases are rare. "The child is teething," is the vague explanation given to many an anxious mother, by practitioners who are either incompetent to form a complete diagnosis, or too indolent and careless to seek for the hidden springs of disease; who are too heedless to carefully weigh all the symptoms, masked as well as developed, and who trust to luck for a verification of their hastily formed prognosis. I believe that this convenient make-shift has quieted the alarmed mothers and lulled the anxious friends of countless little innocents into a fancied security, and stayed the fears which might otherwise have instituted timely measures for relief, until, too late to save the little one, it was discovered that an alarming disease had attacked the vital organs, the very citadel of life. "Only teething." To how many promising young existences in which were centered the hopes, the ambitions, the heart affections of a family circle, have these words sounded the knell. "Only teething,"—and the fond parents looked with but little alarm upon symptoms of the gravest character. "Only teething"—but when to their agonized ears came the sound of the clods of earth falling upon the little coffin, and they realized that with the words, earth to earth, dust to dust, ashes to ashes, the door which opened to a bright and promising future of years of comfort and happiness to be spent with the loved child when grown to manhood or womanhood was now forever closed, when all the world seemed but one wide churchyard in which to bury from their sight their loved ones, in this hour of anguish would it alleviate their pain to know that a great mistake had been made—that a fatal error had been committed? And if, to the conscientious physician, the knowledge too late should come that, to save himself a moment's labor and thought, he had lightly passed over indications that it was his duty faithfully to study, would not the sight of those grieving parents, the habiliments of mourning, "the knell, the pall, the groan, the tear," would not these things rest heavily upon his soul? That you, gentlemen, may be spared such vain regrets, the lashings of tortured conscience consequent upon manifest duty fatally neglected, I have endeavored, so far as my poor ability permits, to point out to you the danger of mistaking grave pathological conditions for mere functional derangements.

MATERIALS FOR FINISHING AND POLISHING FILLINGS.

BY C. F. W. BODECKER, D. D. S., M. D. S.

The best filling, unless great care has been exercised in finishing, may result in a failure, especially when situated upon the proximate surface of a tooth. With most of the appliances in use to-day, to obtain the desired result involves a great deal of patient labor. In dressing down gold fillings, small shellac corundum points are very serviceable, but, as soon as an instrument made of this material is small enough to reach all the depressions upon the teeth, it readily wears out or breaks. For the proximate surfaces, sand, emery, corundum, etc., fastened upon paper, cloth, or celluloid, cut into strips or disks, have been employed, but with some difficulty, as the polishing materials are held upon the paper, etc., mostly by glue, and the cutting surface is destroyed as soon as it comes in contact with the saliva. Although an application of an alcoholic solution of shellac to the sand or emery paper will materially improve its durability, yet it remains a very disagreeable and sticky material to handle in the mouth, unless it can be kept perfectly dry.

Besides these, there are several other appliances, viz., Brown's polishing silver strips, copper strips, wood shavings, etc., but neither is free from objections. Not satisfied with these materials, and desirous of obtaining something better, Dr. Wm. Herbst, of Bremen, Dr. Franz Berggren, and Dr. E. Förberg, of Stockholm, have largely experimented in this direction, and in certain appliances have made considerable improvements, which deserve the acknowledgment of the profession.

It is well known that points and disks, made of black rubber and corundum, or emery, have been used many years, but they cannot be obtained from the dental depots (as is understood), on account of a pending patent law-suit. But every dental practitioner may easily prepare them for himself, and better ones than can be bought at present. For this purpose take one part of ordinary red rubber, and two parts of corundum, or emery. Warm the rubber upon a water bath, and gradually knead the corundum or emery into it, so that it is evenly distributed throughout the rubber, which is then flattened out so that it may be readily cut. Take button moulds, or points made of wood, of the required size and shape, fasten them

with wax upon the ends of worn out engine burs, insert them into an ordinary deep rubber flask, head upwards, in such a manner that the upper surfaces of the points are exposed, and pour the counterpart. When the plaster has set, open the flask, remove the points or button moulds from the mandrels, and after they have been cleaned perfectly with boiling water, pack a little ordinary red rubber in the center around the mandrel, and fill the rest with the rubber impregnated with corundum or emery. Then close the flask, and vulcanize in the usual way. When the points are vulcanized they are, while rotating in the engine, shaped upon a coarse file, and then immersed in nitric acid from two to six hours, according to their thickness. But precaution must be taken to apply a thin coating of wax all over the mandrel, else the acid will dissolve the steel. When hard rubber, corundum, or emery points are treated in this manner, the nitric acid dissolves the outer layer of the rubber, leaving the corundum or emery intact, thus exposing a cutting surface superior to the best ordinary corundum point, or sharp steel bur, and a great deal more durable than either. (Dr. Wm. Herbst.)

Soft points and disks may be very easily made of ordinary velum rubber impregnated with powdered pumice, but as the soft rubber cannot well be fastened upon a mandrel, a hard center may be put into it in the following way: With a punch cut the disk out of a sheet of velum (soft) rubber, and out of this disk remove the center by means of a smaller punch. The center is replaced by a piece cut out of a sheet of unvulcanized hard rubber. The disks or points are then closely wrapped in tin foil, put in the flask, vulcanized, mounted, and trimmed upon coarse sandpaper, while rotating in the engine. (Dr. Berggren.)

To prepare disks that will withstand moisture, take a piece of strong, thin linen, and a piece of sand or emery paper. Varnish both with a rather thick solution of shellac in alcohol (the paper upon its sanded side), bring both together, and keep them under a press for three days. Then immerse in water, when the paper will be found to separate from the linen, leaving the sand or emery held by the shellac upon the linen, out of which the disks are stamped. (Dr. Wm. Herbst.)

Durable paper disks, with emery or corundum, may be prepared by coating thin cardboard (without gloss), as postal cards, with a thick solution of shellac, and sprinkling the thinnest possible layer

of corundum or emery upon it, out of which, when perfectly dry, disks may be cut. (Dr. Förberg.)

To make disks of thin rubber cloth, to be used with advantage for polishing with powdered pumice or chalk, take two pieces of rubber cloth, as obtained in the rubber stores, coat them with a rather thick solution of shellac in alcohol, and immediately bring them together and keep them under a press for about two days. When thoroughly dry the sheet may be cut into disks by means of a punch, and when mounted upon a screw mandrel they can be made quite thin by holding them, while rotating in the engine, upon a piece of sandpaper. A variety of thicknesses of rubber cloth may be employed with advantage, but it is better to cement two layers together, and then only use one thickness of rubber cloth, as the shellac imparts great stiffness to the disk. (Dr. Wm. Herbst.)

For removing surplus filling materials from the proximal surfaces of teeth, a watch spring, upon which a layer of corundum or emery has been attached, is of great service. To prepare this, warm a thin watch spring over a Bunsen burner, or the flame of a spirit lamp, apply a thin coating of solid shellac, and quickly, while the shellac is yet in a fluid condition, immerse the spring into powdered corundum or emery. When perfectly cold they may be used in a saw frame, and will be found more serviceable than thin files. (Dr. Berggren.)

For polishing proximate surfaces of the teeth, ordinary rubber cloth cut into strips, or very narrow velvet braid, will be found to work admirably. Thin chamois leather will probably produce the finest polish, but when narrow strips are used they will stretch out, and tear very quickly. To overcome this difficulty, sew a seam lengthwise in the strip with a sewing machine, which will very materially strengthen it. (Dr. Berggren.)

To prepare tape which is very serviceable, and which will retain the polishing materials well, take some strong and thin linen tape, of desired breadth, soak in ordinary thin rubber cement for two or three days, then remove it, at the same time scraping off all the surplus rubber cement, and let it dry for about twenty-four hours. The tape is then impregnated by rubbing it with powdered corundum, pumice, chalk or any material that it is desired to use. The rubber cement will hold these substances very firmly in the meshes of the tape, and it may be used under water or saliva without losing its cutting surface. (Dr. Wm. Herbst.)

EDITORIAL RESPONSIBILITY.

BY DR. GEO. H. CUSHING, CHICAGO, ILLINOIS.

The editorial in the October number of the INDEPENDENT PRACTITIONER upon this theme, furnishes me an excuse for saying what I have long felt needed to be said, but which I have hesitated to present, because doubtful if it would accomplish any good.

I think it is generally supposed that the editor of a scientific or professional journal is fully informed regarding the various matters pertaining to the subjects naturally presented therein, both as to well established facts and generally accepted theories, and also as to the various unsettled theories which may be matters of discussion. I believe, also, that a large proportion of the readers of dental journals unthinkingly accept as reliable, almost anything that appears therein on subjects with which they are not familiar. In view of these premises, I think that the editor should be held to a more strict accountability than he now is, and I desire briefly to state my idea of the extent and nature of his "editorial responsibility."

First, as to correcting his correspondent's manuscript. He certainly should not only be allowed, but *expected* to make such corrections as may be necessary to render the article grammatical, the construction of sentences correct, or to make more plain the obvious meaning of the author. There are very few writers for the journals who do not commit more or less errors of the kind referred to, in almost every communication they offer, and they should be only too thankful to the editor who would save them from the adverse criticism the publication of such errors would be sure to entail. This is almost entirely a matter of taste, and is not important as bearing upon the value of a journal otherwise properly edited, but one province of the editor certainly should be to place all communications before his readers in the best possible shape, so that he does not change the sense intended to be conveyed.

Now, as to the responsibility which I regard as vital in making professional journals of the greatest value. It should be the duty of the editor, when any correspondent states what is known to be erroneous or misleading, to correct such statements in a note, inclosed in brackets; or when a position is assumed as to certain views being generally accepted, if the editor knows they are not, he should

also so state in the same way, and where any opinion is advanced the editor might briefly suggest the opposite side of the argument. These notes or comments should occur in the body of the article. In addition to this, the editor should write an article briefly reviewing all the communications in the journal, and in case of anyone of particular importance, he should devote a special article to that. In this way our dental journals could be made much more valuable to the general reader than they now are; thought would be stimulated, and a more general and intelligent discussion be induced. This method would not constitute the editor an "arbitrary censor," in any offensive sense, nor make the journal "to reflect only his own opinions."

I do not mean by the above to insist that a man has no right to edit a journal in the way in which journals are now generally edited, but that the course I have briefly described is the only one which can secure the most valuable service to the profession.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FIFTH ANNUAL MEETING, HELD AT MINNEAPOLIS, MINN., AUGUST 4, 5, 6, AND 7, 1885.

REPORTED FOR THE INDEPENDENT PRACTITIONER, BY "MRS. M. W. J."

(Continued from page 595.)

THURSDAY MORNING SESSION.

The Secretary read a letter from Dr. Geo. A. Mills, of Brooklyn, tendering his resignation. The Special Committee on the question of appropriations to the Sections, for the encouragement of original scientific research, reported through the chairman, Dr. C. N. Pierce, of Philadelphia. After referring to the scientific investigations carried

on in other countries,as in Germany,under government patronage, or in England, under appropriations from the British Scientific Association and other societies, and the immense results accomplished, as compared with the meagre and incomplete results of individual effort, the prestige of the American Dental Association being compromised by lack of originality in papers and reports, the committee recommended that appropriations be made to different sections for the promotion of original investigation; the money to be expended in the purchase of materials and books, in the employment of experts in the different sciences, of artists, copyists, for expenses of printing, engraving, traveling, etc; the things that money could do in furthering this great work being almost limitless.

Dr. W. H. Morgan—Said that when the subject was first brought before the Association, he had announced himself in favor of the committee, but opposed to the appropriation. That since thinking the matter over, and especially while listening to the valuable paper of Dr. Ingersoll, and learning that he had traveled a thousand miles, and spent much time in pursuit of these investigations, comparing the results with those of other men, he had come to the conclusion that, though this might be a work of love with such men as Dr. Ingersoll, yet men who were able and disposed to do that kind of work ought to at least have their traveling expenses paid. He was therefore ready to vote for the appropriation.

Drs. H. A. Smith and *C. W. Spalding*—Objected to the insignificant amount suggested in the report, which would go but a very little way in the purchase of type-writers, microscopes, and the delicate and costly instruments required in accurate scientific investigations.

Dr. A. W. Harlan—Thought that such appropriations would soon require assessments, and eventually break up the Society.

NOTE.—The purchase of type-writers, microscopes and such other apparatus, is not in any way contemplated by the advocates of the resolution. If the representative Association of American Dentists is to deserve and win a reputation as a scientific body, it must foster and promote systematic, scientific investigation, and not trust entirely to desultory, individual effort.—EDITOR.

After some further discussion the report was adopted, and the sum of two hundred dollars each appropriated to Sections V, VI, and VII.

Dr. E. Parmly Brown—Wished to present a crown which he had just perfected in connection with bridge-work. The most crowns were weakened by being too much hollowed out; the strain on a tooth was not equal, the lateral strain being insignificant as compared with the strain in biting. He had consequently invented a broad, flattened pin, which gave added strength where the leverage was greatest. His crowns were also rapidly inserted. He had put in three between nine and one o'clock, for a lady who was a professor of vocal music, and could only give him those four hours for the entire operation.

Dr. C. S. Stockton—Said there was no subject now engaging the attention of the profession so much as that of bridge-work. That it pertained as closely to mechanical as to operative dentistry, and that he had hoped it would have been given to the former section. As it had been included under operative dentistry, he had a case he would like to report. There were in the mouth the six front teeth, one right bicuspid, and two wisdom teeth in the lower jaw. In the upper jaw were the six front teeth and two wisdom teeth. The six upper front teeth were entirely covered and hidden by the lower incisors in occlusion, presenting a very unsightly appearance. Several attempts had been made to supply artificial dentures, without success. He had placed gold caps over the wisdom teeth, throwing the jaws apart so as to leave the upper incisors only slightly behind the lower, filling in the spaces with bridge-work. The operation was thoroughly satisfactory, the patient pronouncing it a blessing that was beyond price.

Dr. E. Parmly Brown—Said that the Herbst method of filling might be good, but it was not the best. It was going back to old styles, and necessitated the cutting away of good material in order to make simple cavities. No man would dare to say that the Marshall H. Webb method of preparing cavities was not correct.

Dr. J. D. Patterson—Said he thought the Herbst method would prove unreliable. He had experimented with it for two years, both at the bench and in the mouth. He could fill the same cavities more rapidly and more thoroughly with annealed soft gold or cylinders. He thought the fillings made at the clinic yesterday would fail within six months.

Dr. G. C. Daboll—Said that the best point in the Herbst

method was the use of the matrix. This insures ease and certainty, and saves time and labor. It makes a simple crown-cavity of the most difficult posterior proximal cavities in molars and bicuspids.

Dr. W. A. Spalding—Said that the Herbst method was good in some places, and in some cavities, but he noticed that its most enthusiastic advocates finished their work with the electric mallet. The one point was to put the gold in solid, no matter by what method, whether Herbst's, or Smith's, or Brown's. Do what is best for the case in hand. One says he *always* uses the mallet; another *always* uses the matrix; but there are cases where neither is available. Each man should use his own method, and exercise his own judgment.

Dr. W. C. Barrett—Said that it was not individual cases, but basal laws that should be discussed. There were three principles involved in filling teeth with gold. One was the wedging process, in use forty years ago, requiring non-cohesive gold, one piece sliding past the other, each held in place by the mechanical friction of the wedge. By this system good work was done in saving teeth. Then came cohesive gold, impacted by blows, starting from a single point where it was securely anchored, and built up piece by piece, making a solid, homogeneous mass, restoring nature's contour. These two methods involved diametrically opposite principles. In one the gold surfaces must slide upon each other; in the other they must not. In one it was wedging; in the other it was welding.

The Herbst method is entirely different in principle; the gold is burnished down; but each of the three methods has its advantages and its merits, and each has something lacking. By the first method tooth form cannot be restored; by the second, gold is not brought in such absolute contact with a smooth wall. To produce absolute contact the gold must not be impacted or driven with sharp points; it must be spread out and worked down smoothly.

The Herbst system of rotary burnishing produces the most perfect contact with the walls of the cavity, but the building up of a solid, homogeneous mass, requires the mallet.

To produce finished, complete work, the mastery of all these systems is required. Use the Herbst method, in those cases in which it is applicable, to insure contact with the walls of the cavity; use the mallet to build up the mass and condense the surface, then you will have a perfect operation. The operator who excludes all but

his own way—who says my way is always the right way, and the only right way, and all others are always wrong—will not succeed, will not make a good teacher. We must select that which is the best adapted to each individual case.

Dr. E. Parmly Brown—Said that wherever gold was put in human teeth, and needed there, it was needed absolutely solid. He did not believe the Herbst, or rotary process, would put gold in any angle or pit, and he had challenged Herbst to meet him, either in Europe or in America He had been asked to fill gold tubes as a test, but that would not prove anything, and that was not his business. Gold could doubtless be worked against a smooth glass surface with the rotary motion, but that was no proof of what it would do, in a cavity, in preserving the tooth.

Dr. M. L. Rhein—Said that Dr. Barrett had struck the keynote in regard to combining different methods according to the case in hand. The proper kind of gold, the peculiar German gold with which to work on the German plan, had only been very recently introduced into this country. The Herbst method could only be successfully employed with that gold which was made especially for that process—a very soft, non-cohesive gold, which was like working the burnisher in a roll of butter—absolutely non-cohesive in the bottle, although as solid in the tooth as if malleted. He did not consider his clinic a fair test, as he had worked with borrowed instruments. Up to the point where he used the mallet, none of his gold had been annealed, but the best operators had examined it and pronounced it thoroughly welded. The failure of work done two or three years ago, claimed as done by the Herbst method, was due, not to the method, but to the use of ordinary gold. Work that he did last September, by the Herbst method, with the German gold, was as perfect as if done yesterday. He had been a pupil of Dr. Webb in the method of preparing a cavity and contouring, but for the Herbst method no retaining pits or painful undercuts were required, this being one of its great advantages. For finishing the surface, and for contouring, he used the mallet, combining the two methods, annealing the gold very slightly for the mallet. He said that Herbst had shown the greatest ingenuity in the adaptation of the matrix in the anterior teeth, making proximal cavities as simple as molar crown cavities. It was just as necessary to have good, strong walls, as if all the work was to

be malleted. In very large cavities the walls could be lined with gold by the Herbst method, the centre filled in with oxy-phosphate, in which gold is again anchored and malleted for the masticating surface. There is not the slightest necessity for impacting a large amount of gold, if the enamel edges are perfectly sealed and leakage from the exterior prevented. The quantity of gold impacted is not a material point, so that the tooth is preserved.

Dr. W. A. Spalding—Said that he understood the Herbst method to mean the introduction of a new gold, a very pure gold, and only that kind of gold. He used another manufacture of gold, and had laid one piece on another without annealing, and burnished them together so that they could not be picked apart. Any kind of gold that would cohere solidly was good gold, whether the work was done by the Herbst method or by any other method; with a peculiar kind of gold or with any other kind of gold. The point was simply to have all moisture excluded. It was narrow-minded to feel restricted to the use of any one method, or any one material.

Dr. L. C. Ingersoll—Said there were two or three principles involved. The surfaces brought into contact by burnishing were held together by atmospheric pressure. When they adhered from the effect of rapid rotary pressure, it was from electrical attraction, which developed cohesion. By this means, taking advantage of these two principles, Dr. Herbst himself can restore contour by his system.

Dr. W. H. Atkinson—I am using a manufacture of gold upon platinum and iridium. This foil makes a harder surface for mastication than any other known, comparing with ordinary soft gold as steel with soft iron. It can be used in Nos. 120 or 60 or 30. Its great advantage is its hardness; also its near approach to tooth color. It adheres to ordinary gold better than to tin. Platinum and iridium, with a large proportion of 120 gold foil, makes excellent plate for clasps, when rolled to 24 American gauge. To make a uniform plate, flow melted gold scraps on the platinum and roll. If heated it will make nodules. Lightly hammer these together and run them through the mill. Anneal in filling, and use hot from the lamp. This gold and platinum is in cylinders and in foil, and makes a soft gold of good color. The addition of iridium gives a good, hard masticating surface.

Dr. E. T. Darby—Would ask Dr. Atkinson if he uses 60 and 120 foil as a rule?

Dr. Atkinson—I don't care whether it is 60 or 120 or 420! I cut it into strips, anneal, and carry home.

Dr. W. W. Allport—While others are speaking, many things pass through my mind that might be useful to younger members. In listening to the discussions regarding the different methods of using gold, and different manners of operating, I am reminded of the saying of an eminent Divine: "There is no heresy so false that it has not in it a germ of truth." It is equally the fact that there is no doctrine so true that it has not in it something false. One speaker insists that a hard and solid filling is absolutely essential. If a filling is so packed against the wall of the tooth as to resist mastication and exclude moisture, that is all that is necessary. Going beyond that is going beyond the point of utility. The additional hardness is a damage to the tooth, being unyielding to thermal changes. At the meeting of the Association in Boston, I called attention to the difference between cohesion and non-cohesion. Non-cohesive gold simply slides on the surface without clogging. No man here will say that the old-fashioned operators did not save as large a proportion of the teeth they filled as are saved in proportion to-day, or that any more beautiful operations are made now than were made then. Filling and saving a tooth is one thing—building up a tooth is another. There is nothing better for filling and saving teeth than non-cohesive gold. As I said a year ago, I can see much good and much evil in the Herbst method. It offers much that is attractive; in some ways it may be good, but not for practical every-day work, and I predict great evil if it is generally adopted. I judge from what I have heard, and from what I have seen—I have not tried it myself. I do not dispute that it may be burnished against the walls, but not into undercuts. How are you going to use straight instruments in uneven cavities? You must cut away and destroy tooth-substance. No man has the right to destroy where he can save. The new gold may be the best ever seen, but the method of using it is not good; that is, in my opinion. If you employ the Herbst method at all, use it in open cavities, of easy access. If I were to use it I should reverse the order and fill the cavity with the mallet, and finish with the burnisher, and for this I would use Abbott's bulbs.

Dr. G. R. Thomas—We all seek the same end by different roads. There are thorns and thistles which are easy to uproot if handled in the right way, but some men cling to their own narrow conceptions. There is a great difference between making beautiful fillings and being a good dentist. Fillings may be beautiful to the eye and yet not save the teeth. When one method is used exclusively, there is danger of carrying it too far. It is due to the patient to produce good results. It must be remembered that we are dealing with a frail, sensitive structure. There is more danger to the teeth from over-operating than from not enough. Young men are urged to use the matrix on all occasions, but good results can be produced without it. All students were once taught to use vulcanite rubber, and now few can use anything else. Learn first to make good gold fillings without a matrix, otherwise there will be trouble in cases where a matrix cannot be used.

Dr. H. J. McKellops—Said he had listened attentively to Drs. Allport and Thomas. He would ask Dr. Allport what he called adhesive and non-adhesive? What he used the lamp for when using the mallet? He had noticed that in employing soft foil, Dr. Allport took a No. 4 roll in his fingers and thrust it in the flame to make the point stick. Did not that make it adhesive? He desired men to practice what they preach. Concerning the matrix, there were no instruments more useful than those of Dr. Jack; most essential where it was important to save time, or where we cannot get up to the cervical wall. Young men must be taught to use it in the places where it would accomplish good work. Referring to what Dr. Atkinson had said of iridium-gold, Dr. McKellops said that he had not had as much experience with it as with platinum-gold, but that which he had was not satisfactory. It was too stiff. It would not yield, or work under the lamp as he wished. He got better results with No. 60 platinum-gold rolled. He had found nothing equal to it for the masticating surface. The first he had seen was from Blake, of California, in 1876. He had been using it ever since. He could almost produce any shade he wanted for contouring front teeth; across the table it would hardly be observed that the teeth were filled. He used the shades 1, 2, and 3, and nothing less than No. 60.

(TO BE CONTINUED.)

AMERICAN DENTAL SOCIETY OF EUROPE.

THIRTEENTH ANNUAL MEETING, HELD IN BERLIN, AUGUST, 1885.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 605.)

SEQUELÆ OF CARIES OF TEETH.

Dr. Gottinger read the following paper upon this subject:

In studying disease it is customary to discuss, besides the morbid phenomena of the process and the resulting structural changes in the part affected directly, known as primary lesions, such other changes as are produced secondarily, or in parts not directly involved. These indirect consequences of a disease are known under the name of sequelæ. A distinction is to be made between the sequelæ of a disease and its complications. The latter term signifies an intercurrent disease, arising during the presence of another, and not necessarily nor directly produced by the former, whilst sequelæ are directly dependent on the pre-existing disease. The study of the sequelæ of a disease is hardly less important than its primary consequences, for, from the intimate anatomical and functional relation, which the single constituents of the economy entertain to the entity, it seems that even lesions of a purely local nature always influence the entire economy; nay, that a lesion to even a single cell cannot exist without producing an impression on the whole organism. As a rule, however, continuity of structure, or the connection by the blood or nervous channels, determines this involvement. We propose to limit this discussion to the sequelæ produced by caries of the teeth. We may conveniently consider them under three categories, as produced:—

First, by proximity of structure.

Second, by reflex nervous action.

Third, by communication through the circulatory system. Disorders of the teeth may be transmitted to all the structures of adjacent parts with which they entertain relations, either of continuity or contiguity.

The first and most frequent involvement in disorders of teeth, is probably that of the saliva, and recollecting the important function of saliva in digestion, we will readily appreciate the importance of its integrity and the mischief produced by its morbid alteration.

Besides, the saliva reabsorbed by the blood will impart its own taint to it. Next to the saliva, the air entering the respiratory tract also undergoes certain changes when the teeth are diseased. This change, of course, will not be very marked, owing to the brief, momentary contact of the air with the diseased structures. But, however slight such an alteration may be during a single inspiratory act, the effect must become cumulative by the frequency of those acts.

Next in order to be affected are manifestly the gums, due to their intimate anatomical connections. I think that any decided morbid alteration of the teeth, especially those of a temporary and inflammatory nature, always involves the gums. Besides, the great vascularity of these structures predisposes to such an affection. That even the tongue cannot retain its normality during the periods of dental disorders, seems likewise quite natural. It may be said briefly, that all the surrounding mucous structures suffer more or less, the epithelial cells and mucous glands probably being first attacked. Profound lesions of the teeth, especially caries, not infrequently travel down the maxillary bones, attacking the periosteum and the bony structures themselves. This is more apt to be the case in periodical affections of the teeth, where the diminished vascularity of the system creates a predisposition to such lesions. Even comparatively remote structures, such as the laryngeal or digestive tract, may be affected. In this case, the involvement is said to take place by contiguity of the mucous membrane, As a rule, the extension to the respiratory tract will be found limited, the beginning of the ciliated epithelium forming the line of demarcation, as diseases in these mucous membranes rarely travel beyond the limits of their own epithelium. The circulatory system forms an important and dangerous channel for the communication of affections of the teeth ; important, because all products of morbid processes in the economy, unless they be discharged externally or become organized *in loco*, are carried off by the circulation; dangerous, because the greatest lesions of the economy, probably, are those produced by the presence of septic material in the blood.

We now proceed to sequelæ of altered teeth, transmitted by nervous influences. We will begin at once with an illustration. The fur of the tongue, although often produced by an altered condition of the blood in febrile affections, or by local affection of the mucous membrane, does not infrequently result from the presence of dis-

eased teeth. Every attentive examiner of clinical patients must have noticed the peculiar furry condition of the tongue in case of decayed molars, mostly unilateral, on the side of the affected molar. This condition seems to be produced, less by the contiguity of the structures than by reflex action, involving primarily the second and third division of the trifacial nerve, this nerve presiding over nutrition and repair of the parts. That it is really a reflex action, appears from the fact that the same furry condition of the tongue is produced occasionally by intercranial disease, or by fracture of the base of the skull. A case of tubercular deposit on the Gasserion ganglion, and another where fracture, running through the foramen rotundum, produced the mentioned unilaterally furred tongue, were observed by John Hilton. But another explanation of unilateral fur in presence of a diseased tooth seems equally plausible, namely, that the half of the jaw containing the diseased tooth is far less used in mastication than the other, and hence no removal of the epithelium of one-half of the tongue takes place by friction of the food. The same unilateral fur was also observed by Hilton, in case of inflamed tonsils. In this case the nervous connection related to the glosso-pharyngeal nerve, which is distributed to the tongue, and also sends branches to the tonsils. A more curious instance of nervous transmission from the teeth is the appearance of gray hair on the temple, dependent on a decayed molar on the same side. A case is reported in which a patient with the affection mentioned applied for treatment at Guy's Hospital, London. An examination revealed the presence of a decayed molar in the left lower jaw. The extraction of the tooth brought with it a prompt return to the normal conditions. In this case the auriculo-temporal branch of the third division of the trifacial probably caused the stated affection.

Even the ear may, by reflex action, become the seat of disorders, when the teeth are affected. This is illustrated by the case of Dr. Addison, of London. This gentleman applied to the most eminent specialists of the ear for treatment for an ulceration of the auditory canal. The remedies given failed to benefit him; but an extraction of a diseased molar in the lower jaw on the same side proved a quick and complete relief. A few highly interesting cases bearing upon our discussion are reported by H. Hancock, surgeon to the Charing Cross Hospital, London.

DISCUSSION.

Dr. Miller—The subject which has just been discussed is one of the most interesting and important that we dentists have to deal with; it is also this aspect of oral diseases which entitles them to the most serious consideration of the pathologist and general practitioner. A very valuable contribution to this subject has also lately been made by a medical man, Dr. Von Kaezorowski, of Posen. He directs especial attention to the fact that loss of appetite, nausea, vomiting, etc., may be, and often are, the result of a diseased condition of the mucous membrane of the mouth produced by caries of the teeth. He refers to cases where food, when administered by the pump, was perfectly well tolerated by the stomach, but when the patient attempted to take food in the ordinary way, vomiting was produced the minute it came in contact with the fauces. A thorough disinfection of the oral cavity and fauces was followed by return of the appetite, disappearance of the nausea, and restoration to health.

(TO BE CONTINUED.)

THE SECTION OF ORAL AND DENTAL SURGERY IN THE INTERNATIONAL MEDICAL CONGRESS.

REPORT OF A SPECIAL CONFERENCE OF DENTISTS HELD AT THE GENESEE HOUSE, IN THE CITY OF BUFFALO, NOV. 16, 1885.

For the purpose of determining the feeling of representative dentists from all sections of the United States, concerning the Dental Section of the Congress of 1887, the following circular, prepared by Prof. Taft, was mailed to about fifty dentists.

SPECIAL CALL.

DEAR SIR—You are no doubt aware of the fact that the difficulties that some time ago interrupted and embarrassed the organization of the Ninth International Medical Congress have been in the main removed, and it is now proposed to complete the organization.

A meeting of the Executive Committee, for this purpose, will be held in New York, on Wednesday, the 18th inst.

That committee consists of the President of the Congress, the Secretary General, the Treasurer, the chairman of the Finance Committee, and the Presidents of the Sections.

The following subjects will be presented for the consideration and action of the committee, viz.:

1. Organization of the Executive Committee.
2. Unfinished business, list of vacancies, etc.
3. Reports of Sub-Committees—Finance, Circulars, Correspondence, etc.
4. Special business. Recognition of the Congress by the United States and foreign governments. Design for a seal, a medal, etc. Public announcement of the organization of the Congress.
5. New business. Appointments of Sub-Committees to report to the Executive Committee at St. Louis. (1) On organizations of Sections and duties of officers of the Congress. (2) On nominations of foreign officers and on vacancies. (3) On foreign papers and discussions.
6. Nominations to fill existing vacancies.
7. Election. Adjournment to day fixed.

The Section of "Oral and Dental Surgery" has been restored to the position assigned it by the original committee.

If the work contemplated in the establishment of this Section is to be done in a manner to obtain the highest results, it is indispensable that it should have the hearty approval and co-operation of the dental profession. In view of this fact, and in order that the opinions of at least some of the more prominent members should be ascertained before the meeting of the Executive Committee in New York, it is proposed to request twenty-five or thirty of the persons most interested in this matter to meet at the Genesee House in Buffalo, N. Y., on Monday the 16th inst., at 10 o'clock A. M., for consultation, suggestions, and a full understanding of the questions involved.

It is earnestly desired and very important that you be present at this meeting, and give such counsel as in your judgment will be for the best interest of our profession.

Yours respectfully,

J. TAFT,
W. C. BARRETT,
W. W. ALLPORT,
A. M. DUDLEY.

In compliance with this call, the following named dentists assembled at the time and place designated:

J. Taft, Cincinnati, O.	C. N. Pierce, Philadelphia, Pa.
A. M. Dudley, Salem, Mass.	W. W. Allport, Chicago, Ill.
Geo. L. Field, Detroit, Mich.	J. N. Crouse, Chicago, Ill.
C. R. Butler, Cleveland, O.	A. W. Harlan, Chicago, Ill.
W. P. Horton, Cleveland, O.	T. W. Brophy, Chicago, Ill.
A. O. Hunt, Iowa City, Iowa.	C. R. E. Koch, Chicago, Ill.
L. D. Shepard, Boston, Mass.	W. F. Fundenberg, Pittsburgh, Pa.
J. B. Coolidge, Boston, Mass.	W. H. Atkinson, New York, N. Y.
W. N. Morrison, St. Louis, Mo.	G. C. Daboll, Buffalo, N. Y.

W. C. Barrett, Buffalo, N. Y.

Letters of regret were received from a number of others, who had been invited.

The meeting was called to order by Dr. Taft, and on motion he was elected chairman, and Dr. Dudley was elected secretary.

Dr. Taft stated the object of the meeting, which was a full consultation and conference as to the action advisable in view of the re-establishment of the Dental Section in the coming International Medical Congress. He gave the present status, and adverted to the coming meeting of the executive committee of the Congress, in New York, Nov. 18th.

Dr. Crouse—Said that the first thing to be determined by this conference was the desirability of the establishment of a Section of Dental and Oral Surgery.

Dr. Shepard—Enquired why the Section was dropped after once being established?

Dr. Taft—Replied that the only reason that had been given was, that there were too many Sections, and there was not room for them to work.

Dr. Allport—Gave a history of the original establishment of the Section, and of his own action in connection with it.

Dr. Barrett—Said that those who were in attendance upon the Congress of 1881, in London, had ever since rested under a weight of social and scientific obligation; that they longed for nothing so much as the opportunity to repay it. They hailed with delight the announcement that the Congress of 1887 would be held in this country. When it was announced, they were astounded with the information that no Dental Section was provided for. This, in the country where dentistry had made greatest progress, was to them incomprehensible. If the English physicians had invited us in, was it for America to exclude us? But soon we were informed that a Section had been established, and a list of officers was submitted. We were content, and began to brace ourselves for the effort of making our Section a yet greater success than that of its predecessor in London. Then came the revolutionary proceedings in the American Medical Association at New Orleans. A single society arrogated to itself the entire direction of the Congress, and proceeded to exclude all who were not in affiliation with it. The old committee was ousted, and our Section was dropped under humiliating circumstances. But the new committee soon found that they had

alienated many of the representative men in medicine, and they were met by that which they could but have anticipated. A large number of the officers of the Congress resigned, and declined to have anything further to do with it, and this action was followed by the withdrawal of a considerable portion of the profession from any participation in the organization. A palpable failure stared them in the face, but they were determined to persevere. They saw that the aid of the dentists in this, their extremity, was desirable, and the Section was re-established. But they were now engaged in a heated quarrel, and it seemed demonstrated that the Congress was doomed to a scientific failure. There was no probability that any foreigners of note would attend, and it would lack the character of internationality.

We had been severely snubbed. The secretary had stated that "the omission of the Section of Dental and Oral Surgery was judicious, dentistry not being generally recognized as a legitimate department of medicine." It was only when failure was imminent that they turned to dentistry, and again invited it to come in, and this was done, it had been said, "in response to numerous and urgent requests for its reinstatement, on the part of the dentists." It would be interesting to know who were the dentists who had thus begged to be taken back. Under the present circumstances, unless the original status was resumed, and the original committee reinstated, we could not, unless at the sacrifice of self-respect, again take part. If we were so forgetful of our dignity as to return and attempt what must result in failure, we should remember that we stand, in a certain sense, the representatives of the dentists of the world, and we owe something to them. We have no right to compromise European dentistry by attempting to call such a section "International," when we are fully assured that but a portion of the profession of America, alone, will take part in it. He offered the following resolution:

Resolved, That we as members of the dental profession, deem it inexpedient to recommend the organization of a Section of Dental and Oral Surgery in the International Medical Congress of 1887, under the present circumstances.

Dr. Shepard—Desired to put apart any consideration of a personal nature. The question is, whether under the present circumstances it is advisable to establish a Dental Section. Will foreign dentists be likely to attend it? He thought not. From New England there is not a single man of acknowledged representative character

who will be connected with the Congress. He believes that it will not be of an international character.

Dr. Allport—Thought that the differences would soon be healed, and the Congress prove a success.

Dr. Butler—Thought it was not to our interests to enter the Congress, under the present circumstances.

Dr. Koch—Desired to follow a different line of argument, in opposition to a Dental Section. He thinks that we are taken on sufferance, and for the possible help that we may be able to furnish. We are not invited with that cordiality that warrants our engaging in the Congress. He would prefer to reserve our forces for a possible International Dental Congress.

Dr. Daboll—At the meeting of 1881 felt that he but waited the opportunity to contribute something toward the social and scientific entertainment of those to whom he was under a weight of obligation. The Congress of 1887 did not promise such a success as would give him that occasion, and, therefore, he was not in favor of a Dental Section.

Dr. Hunt—Thought the resolution did not go far enough. It would be well for us to express the reasons for our action, lest the declaration might be prejudicial to our hopes of such a Section becoming a fixture in future meetings of the Congress.

Dr. Harlan—Had a letter from Magitot, in which he stated it as improbable that he should attend, and he thought it extremely unlikely that there would be any foreigners of note present. The dentists formed about one-sixth of those engaged in the healing art, in the United States. Surely something was due them, but it should come in such a way that we could accept it without a loss of dignity. He deemed it inadvisable to enter the Congress of 1887.

Dr. Brophy—Had watched the proceedings of the Committee of the Congress with interest, and he believed that unless radical changes were made the meeting could not be a scientific success. It is not possible for our Section to prove a credit to us unless the whole meeting shall be a success, and this was, to say the least, extremely problematical. The dental section of the American Medical Association, that commenced under happy auspices, has dwindled down to almost nothing.

Dr. Horton—Does not believe that the best men among the dentists will be willing to be active in the formation of a dental section of the Congress, as it is at present organized.

Dr. Fundenberg—Is opposed to the formation of a dental section, for the reasons already stated.

Dr. Morrison—Thinks that if we take the course indicated by former speakers, it would indicate that we feared the results. There is a higher position that we might assume. We should keep up the Section for the sake of the future. If we definitely refuse now to take part, as the resolution contemplates, and the Congress should prove a success, we might regret it.

Dr. Atkinson—Said that the resolution contemplates no such definite and final refusal. It was only under the present circumstances that we deprecated or declined action. If the organization of the Congress was changed, and those in whom the medical profession placed confidence assumed the direction, we could then act heartily in accord with them.

Dr. Field—Fuly concurs with the general tone of the remarks made here. We have been dropped from the Congress under humiliating circumstances, and he is now in favor of staying out. The most dignified course that we can take is to quietly step one side, and watch the progress of the medical fight, ourselves taking no part.

Dr. Pierce—Has consulted with prominent medical men of Philadelphia. Dr Hays has received a letter from Sir James Paget, President of the Congress of 1881, and he is in a position to speak for the medical profession of England and Germany, and is positive that no representative men from those countries will attend the Congress of 1887. He believes that we cannot, consistently with self-respect, take any part in the coming Congress.

Dr. Crouse—Likes to be on the other side, and to act with the minority, but here he finds himself unable to do so. He does not think that, under the present management, the Congress can prove a success, and believes that we are better out of it.

Dr. Allport—Wished to remove any impression that we should be humiliated by entering the Congress. We should here express no opinion, but leave the whole to Dr. Taft, who is a member, *ex officio*, of the Executive Committee, and when he reaches New York he should be allowed to use his own judgment, and if he thinks a Dental Section should be established he should act in conformity with that belief.

Dr. Shepard—Said that Dr. Taft had called us together, some of the members of the conference traveling nearly two thousand miles,

for the purpose of obtaining our opinion and offering our advice. If no expression of judgment was given the conference was a farce.

Dr. Coolidge—Had little knowledge of the subject, and therefore hesitated to express a positive opinion.

The Secretary read letters from Drs. Frank Abbott, J. L. Williams, of Boston, Geo. H. Cushing, Thos. Fillebrown, B. H. Catching, H. J. McKellops, S. B. Brown, Ed. Maynard, W. H. Morgan, W. H. Trueman, C. A. Brackett, E. T. Darby, A. H. Thompson, M. W. Foster and others, the general tone being adverse to the formation of a Section of Dental and Oral Surgery.

Dr. Dudley—Said that he was at first anxious for the establishment of such a Section, but when the revolutionary proceedings were adopted at New Orleans, he became convinced that the Congress must result in a scientific failure. If we now took any part in the Congress we shall be connected with the factional fight, and be identified with one of the parties. We cannot with dignity go back when we have once been turned out.

There was considerable desultory discussion regarding the status of such as should be admitted to the Section, if established, and the qualifications necessary for admission.

Dr. Tuft—Said that a part of the Council of the Section possessed only the D. D. S., and it was not at all probable that any one having that degree, even though he was not a graduate in medicine, would be excluded.

A number of verbal amendments to the resolution were offered, it clearly being the opinion of those present that, under happier auspices, the dentists would heartily co-operate, but all were voted down, as it was urged that the resolution provided for such a contingency.

Finally, the resolution being put to vote, it was adopted unanimously, and, upon motion, the conference adjourned.

NEW YORK ODONTOLOGICAL SOCIETY.

Reported for the Independent Practitioner.

This Society held its regular monthly meeting on Tuesday evening, November 10th, in the parlors of the New York Academy of Medicine; President Jarvie in the chair.

After the regular order of business, Dr. Atkinson, at the request of the President, described an interesting case which recently came to his care, after having been under the treatment of physicians for a period of five years. The patient, a young girl, had suffered from a fistulous opening on the chin at the symphysis, and the almost constant discharge through this opening had not only impaired her health, but seriously interfered with her attendance at school. The long continuance of the trouble, and the fact that the young Miss was just verging into womanhood, caused her then attending physician to determine the extraction of the inferior incisors. To this resort the mother objected, and would not give her consent to such a sacrifice unless convinced that it was an absolute necessity. She sought the advice of Dr. Atkinson, taking her daughter with her. After a thorough examination, Dr. Atkinson delighted the mother by stating that, in his opinion, the fistula could be cured and the teeth saved, and he requested a consultation with both their attending physician and her former dentist, to take place at his office, the mother also to be present. The engagement was kept by all parties, and it was decided that openings should be made into the root canals of the incisor teeth. It was the desire of all present that Dr. Atkinson should perform the operation, and he drilled through the entire length of each tooth and root, and even through their foramina. Immediately after making the openings the characteristic indications of necrosed bone were made manifest. Dr. Atkinson described his treatment for disposing of the necrosed bone and clearing the fistulous tract, and stated that already a marked improvement had taken place, with every prospect of a permanent cure.

Dr. F. Y. Clark—Asked if medicines used in the treatment of such cases could not be forced through the root canal, without the necessity of drilling through the foramen.

Dr. Atkinson—Thought that in almost all such cases nests of microbes collected at the apex of the roots. These were broken up and destroyed only by drilling completely through the ends of such roots.

Prof. C. N. Pierce, of Philadelphia—Who was present, stated that in many cases it had been his practice to extract dead teeth, smoothly grind the apex of the roots, so often partly absorbed, insert into or fill the canals with wooden plugs saturated with a mixture of carbolic acid and tr. iodine, then replace the teeth and ligate

the same to hold them in position until they become firm. This method, in the doctor's practice, had given good results. Dr. Pierce also stated that some time ago a lady patient called at his office who had just before received a fall in the street, completely knocking out her two superior central incisors, which were left where the mishap occurred. The doctor requested the lady to return immediately to the spot and secure, if possible, the lost organs. In a little time she came back, having been fortunate enough to find them. These were immediately placed in warm water; then the pulp canals were cleansed and filled with carbolized wood, and the teeth forced into their former positions. They again became firm and useful.

Dr. S. G. Perry—Was glad to hear Dr. Atkinson say that he drilled through the apex of roots, as he often did so, believing this was the only sure way to destroy the nests of microbes and to insure treatment that would reach the desired point.

Dr. Clark—Was greatly pleased to hear members of the Society speak of microbes, and organisms of decomposition; also their appreciation of antiseptic conditions. Not long since he remembered that, when speaking of these organisms, their existence was seemingly questioned, and his statements received with a smile.

Dr. A. H. Brockway—Presented a curious specimen of a supernumerary tooth in form of a bunch of nodules. Dr. Brockway then read a paper of an exceedingly practical nature on the "Rubber Dam," showing its utility, methods of adjustment, ligatures, clamps, and weights for holding the rubber in position. He preferred a dark rather than a light color of rubber, as it caused the teeth to stand out in stronger contrast against a dark background.

Dr. Perry—Found a piece of rubber dam rolled in a napkin very useful in preventing moisture working through, when used in operations for the upper teeth.

Dr. W. T. Laroche—In order to prevent the possibility of moisture oozing up between the teeth, often uses two thicknesses of the rubber, punching each and putting one piece over the other.

Prof. Pierce—Read a somewhat lengthy paper entitled "Function; its Evolution and Influence on Organization."

The essay was listened to with marked attention and much interest, and for which the thanks of the Society were gratefully tendered. The paper was briefly discussed by Drs. Atkinson, J. Morgan Howe and J. Smith Dodge, Jr.

Editorial.

TO JUNIOR DENTISTS. NO III.

DEVITALIZING PULPS.

My Dear Doctor:

There is scarce one of us who is able to free himself from the dominion of other minds. Reason, experience, observation, all go for nought in the presence of the dictum of one whom we have long looked upon as an authority. We cling to the most absurd superstitions, we accept as infallible truths the wildest speculations, we follow in practice the most preposterous hypotheses, if only they are generally acknowledged as quite orthodox. If a man once be accepted as a leader and then be prodigal enough of positive declarations, if he continue, in season and out of season, to loudly assert his own infallibility and proclaim the assinine ignorance of every other man, he will find enough of the unthinking to blindly follow him, though he be at all times incoherent, inconsistent, and as changeable as a weather-cock. If he shall have written a book, he will need do no more than to dogmatically assert that he alone is the true teacher, and there will be fools enough to swear by him, though no two chapters are compatible. The amount of it is, few men care to think for themselves. Consistent reasoning requires considerable effort, and it is so much easier to obtain theories at second-hand that most men shirk the labor, even if they are competent to perform it. This is severely true in dental practice, and hence the most of us are mere copyists, obtaining our ideas and methods from those who are more dogmatic and positive than we are. So true is it, that I doubt if there are many who will take the trouble to thoroughly comprehend this prologue.

I give you credit for something better, for your letter of inquiry concerning the destruction of tooth-pulps seems to demand law and reason, and not the mere dictum of any man, or set of men. It has been loudly proclaimed that any dentist who wilfully destroys a tooth-pulp, or even the last moribund vestige of one, commits a henious crime. If this be so I am a villain of the blackest dye, and steeped in iniquity to the lips, for I have destroyed many. Probably I am about the only sinner in the profession, for though we hear very much in societies and the journals about the treatment

of root-canals, no one admits that he was responsible for the death. Dentists have heard pulp devitalization so roundly denounced, and in such scathing terms, that they dare not practice it. But I am ready for immolation, and hereby freely admit that I destroy pulps, and use arsenical paste for that purpose, too.

I would not have you understand that I indiscriminately destroy every pulp that I meet in practice. Far from it. There are few drugs in our pharmacopœia that have been more abused than arsenious acid, but in my opinion it has its legitimate uses. And now comes the question, when is its use justifiable, and when to be condemned? Ah, my dear doctor, that is a matter which cannot be explained in a paragraph. As a young dentist, you are, doubtless, like most of the others, searching for specific, definite rules. You wish a perfect law, that shall teach you, in every case that presents, precisely what your duty is. You desire an unerring guide that, irrespective of any complications, will dictate what is good practice. I know the feeling, for I have been there myself. For years I studied recipes and specifics, until it finally dawned upon my obtuse understanding that this was, in principle, quackery of the worst kind. When you are older, and have a more perfect acquaintance with physiological laws, you will comprehend that there are many factors which enter into the sum of even the simplest disease. No man has mastered them all, and probably no man ever will. Should any one do so, that will be the end of progress so far as he is concerned. He will have nothing more to learn, and will be quite ready for translation.

You will find many panaceas, and specifics, and universal laws and remedies advertised in the annals of charlatanism, but you will never try any of them but once. Perpetual motion, the philosopher's stone, and the perfect catholicon will all be discovered together.

When I say that certain pulps should be destroyed and certain others treated for preservation, I cannot definitely draw a clear line of demarcation that shall enable you to determine them at a glance, although I have my own ideas concerning them. I can usually determine a case for myself, after due inquiry. How do I do it? I examine it in the light of more than twenty years' experience, my boy. Have I lived and practiced all these years for nothing? It has been the study of my waking hours and the

dreams of my bed at night, to determine these vexed questions. Have I accomplished this? No! a thousand times, no! But I have made some progress. Years ago, when at a Dental Society Meeting I heard oxy-chloride of zinc vaunted as an infallible remedy for exposed pulps, I went home and, in all honesty and anxious earnestness, faithfully experimented. For some time I was in ecstasies, for I thought the dental millennium had come, and the Savior of decayed teeth reigned on earth. But when the antiseptic qualities of the filling were exhausted, and the dead pulp manifested itself in a discolored tooth, an absorbed alveolus, and an abscessed periosteum, in my heart I cursed the mistaken enthusiasts who had led me astray. It is not a very pleasant reflection to know that perhaps others are anathematizing me for assertions more zealous than wise. But, like most people, I am constantly straying off in the lead of false prophets, and presume I shall be to the end. My office is full of patent gimcracks for the accomplishment of impossible things. If at some time a fluent talker shall come along with a set of cog-wheels for insertion in the molar teeth, to aid in the more perfect mastication of food, I dare say that I shall be a purchaser, despite good resolutions.

But you desire to know something about my practice in the devitalization of pulps. (Please never use the term "nerve" in this connection. It is a horrid solecism.) When an exposed pulp presents itself, there are many questions that I must ask myself before I can come to a decision. I must take into consideration all the circumstances. If the exposure be recent and traumatic, the result perhaps of careless excavating, that is one indication for treatment with a view to its preservation. If the patient be young and vigorous, that is another. If the mouth and oral tissues be in a general state of health, and the alveolus be not materially absorbed, that is another. If the cavity of decay be not very extensive, that is yet another. Every indication that the patient is in a good condition for resistance to disease, is an argument for the preservation of the pulp.

But when a case is presented in which the patient is pale, anæmic, in a low state of vitality, perhaps suffering from some chronic disease, that is an indication for devitalization. If of advanced age, the processes of repair are inactive, as they are in diseased conditions, and that is another reason. If there be a markedly septic

condition of the mouth, it will be difficult to restore the pulp to a healthy state. If, for purposes of contour, it be necessary to insert a very large metallic filling, the continued thermal changes will be inimical to the continued life of the pulp, even though it be once successfully capped. If there be extensive or material absorption about the roots of a tooth with an exposed pulp, it will be very difficult to preserve it. If the tooth stand alone, it will be liable to greater shocks, and hence increased danger to an affected pulp, than if it is protected by adjoining teeth. Finally, the condition of the pulp itself will have much to do with the promise of a successful capping. If there be much inflammation and considerable engorgement, it is, in most cases, hopeless to attempt its salvation. You may not be able to judge concerning this by appearances, for it is seldom that a pulp is so largely exposed as to give a view that shall enable you to fully determine. But the patient will tell you. If there shall have been considerable pain, and especially if it shall have been of long standing, unless the circumstances are unusually favorable, there is little hope from capping. If there be a kind of soreness to the tooth, not the result of periostitis, or if there be any great degree of sensitiveness to thermal changes, these are unfavorable indications. It should be noted that sensitiveness to cold is one of the earlier symptoms of an inflamed and irritated pulp. When this has changed to intolerance of heat, while cold gives relief, the pulp is in its last stages, and radical extirpation is loudly demanded. You will occasionally find pulps that have long been extensively exposed without pain. They bleed at the slightest touch, but are not sensitive. These would look like favorable cases for capping, and sometimes they are. But make very sure that there is no fungoid, vascular growth, which you mistake for a living pulp.

You will thus see that there are many things to be taken into the account in determining what you will do with an exposed pulp. Look the ground over very carefully. Your mind once made up, proceed firmly, though cautiously. If the pulp must be destroyed, put on the rubber dam and clean the debris out of the cavity as perfectly as possible. Take the least perceptible portion of arsenious acid preparation, and apply it directly to the pulp, and then seal up the cavity effectually with wax, gutta-percha, or anything that will surely retain your medicament. Remember that if it ooze out and come in contact with the soft tissues, it will be likely

to cause a bad ulcer. If it reach hard tissue, it may result in necrosis. Should you unfortunately find traces of it outside the cavity of decay, use dialyzed iron to neutralize it.

I usually leave the paste in the tooth about forty-eight hours, but you will frequently find that six hours have completed the work, if it be well applied. Then remove it, clean out and open up the pulp cavity, and insert for twenty-four hours a pledget of cotton wet in carbolic acid and dipped in tannic acid. This will contract and toughen the pulp, so that its removal intact will be more easy.

I have removed pulps painlessly by the use of a saturated solution of muriate of cocaine, but this has not crystallized into a settled practice with me as yet.

EDITORS AND EDITING.

It is a compliment when men like Cushing and others, who have written us approvingly, gravely consider the matters presented in the editorial of our October number, entitled "Editorial Responsibilities." In his article in this number, Dr. Cushing suggests ideas that might result in a better literature, if correspondents were imbued with the spirit which actuates him, and if the editor were the ideal being who would alone be competent to put them in practice. But the average writer for the professional journals, all unpracticed though he may be, is exceedingly tender of the children of his brain; the greater their faults the higher do they usually stand in his estimation. Parents are said always to best love those of their offspring who are most deformed. The mere correction of a grammatical error, the striking out of a tautological word, or the rearrangement of a sentence that it may more clearly express the supposed meaning, is apt to be met with an indignant remonstrance, and the intimation that another opportunity for the taking of such liberties will not be afforded the offending editor. He will likely be told that, instead of improving the reading, he has totally misapprehended the idea of the author, and made a muddle of the whole business—as quite possibly he has—for who can fathom the meaning of a writer when he is not quite clear himself as to what he desires to say.

The prevalent belief among correspondents is that an editor must either accept and print an article precisely as received, or reject it altogether, irrespective of the fact that an unpracticed writer may

present thoughts of great magnitude, which the editor desires to use, but which are ill clothed. If the latter strikes out some bold flight of fancy, which is quite irrelevant and positively weakening to the argument, it is certain to be the very pet paragraph of the author.

If the editor correct a mere question of fact, he will be taken to task as imposing his own opinions, and declining to allow a fair inquiry into the truth of generally accepted theories. And there is much of justice in the reproof. Had Harvey first proclaimed the circulation of the blood in a professional journal, would the editor have been justified in correcting his assertion, on the ground that the theory was in direct antagonism to accepted facts? Or shall the manuscript of Miller, or Bödecker, or Abbott, be subjected to editorial revision because they are announcing something new, and preaching doctrines that have not as yet received the stamp of true orthodoxy?

What man is wise enough to determine when he may not be crucifying divine truth?

If the editor interlards the communications of his correspondents with interjections of his own, with contradictions and adverse comments, is he not palpably interfering with the right of the author to a fair field? If he accords to the writer the privilege of expressing himself at all, shall he not give him the opportunity to have his say out, without interrupting and breaking the thread of his argument with impertinent oppositions and gainsaying interjections? Does Dr. Cushing like to hold an argument with an adversary who interrupts every third word with an intrusive denial? Is it not the part of good breeding respectfully to listen till the other party has had his say, and then proceed to utterly demolish him? But the editor is supposed, in his own journal, to speak louder than other men. He can always have the last word if he will. How will correspondents relish the eternal snubbing of those interlarded comments? Or with what stomach will they accept the public reproof, the dogmatical pulverizing which an editorial contradiction in a separate article implies? No! the editor must treat his correspondents gingerly, if he would have their continued co-operation.

Then there is another point of view. No doubt editors are the most wise, the most sagacious, the most erudite of men. But there is positively a limit to their learning. It is quite within the bounds

of possibility that there are those among the laymen who could put new wrinkles on their horns ; who could teach them the very rudiments of some special branches of knowledge. Shall the editor assume to sit in judgment upon the declarations of those who were intimate with truth before he was even born in science? The average editor is a man of unbounded gall, but he usually has some of the remnants of modesty left. And if he be not possessed of a spark of humility, he sometimes has a modicum of prudence. Not always, for we have in our mind's eye two or three instances in which an editor beautifully committed himself by an attempted correction of a correspondent who subsequently proved that he knew what he was talking about, while the editor had not the least conception of the real scientific aspect of the case. No, no. There are correspondents of the INDEPENDENT PRACTITIONER at whose feet the editor very gladly sits, that he may draw instruction from those who are his acknowledged masters.

But when there is such a glaring instance of the violation of good taste as is pointed out to us, in a foreign journal, by a correspondent in far away Madrid, there is no question about the editor's responsibility. He has no right to allow a correspondent to make a consummate ass of himself, even though his ears be extraordinarily long. When the braying becomes too conspicuous, the ass should be summarily squelched.

Every editor desires to make of his journal the very best one published. The most of them succeed—at least to their own satisfaction. They are, almost without exception, innocent, harmless men, with a great appetite for adulation, and subject to the same weaknesses that plague ordinary mortals. They really seek to do the best. In dental journalism at least, their emoluments are moderate, very moderate indeed, consisting of an occasional free ticket to a professional dinner, and a long list of more or less stupid exchanges, through which they must periodically wade, while their labors are interminable, and they literally know no rest. Poor men; they deserve compassion and consideration, and not reproach and contumely. With the greatest propriety might they print at the head of each number of their several journals, the notice stuck up in the orchestra of a "dive" in one of the towns upon the western border of our civilization : "Don't shoot at the fiddlers. They are doing the best they can."

THE DENTAL SECTION OF THE INTERNATIONAL CONGRESS.

The dentists of the United States have watched with absorbing interest the various steps in the organization of the International Medical Congress of 1887. Remembering the signal success that attended the formation of the Section of Oral and Dental Surgery in the Congress of 1881, of which many of them were members, they were anxious that the dentists of America should have an opportunity to exhibit the progress that had here been made, and to demonstrate to the world the fact that legitimate dentistry was a science worthy the attention and encouragement of every other practitioner of the healing art. They received with great gratification the announcement that the next session of the Congress would be held in this country, and upon the formation of the Dental Section were ready to put forth every effort, and to secure for it, if possible, a yet more prosperous issue than had ever attended a convocation of dentists. They were prepared to accept the organization as announced, and had commenced preliminary work for securing a large attendance from this and other countries.

They understood that this was to be a World's Assembly of all that was truly representative in legitimate medicine, quite irrespective of society affiliations, or special vexed ethical questions. When, therefore, they became convinced, by the action of the American Medical Association at its meeting at New Orleans, that a single society had usurped the supreme control of that which was intended to be a council in which the medical profession of the whole world could meet upon equal grounds, they began to fear that the success of their Section was seriously prejudiced.

Following this came the announcement that the Section of Dental and Oral Surgery was, by the reorganized committee, abolished, and that dentists would not be welcomed to the Congress, upon the ground that such medical men as had devoted their lives to the consideration of diseases of the oral cavity were not engaged in the legitimate practice of any branch of the healing art. This annunciation, by those in control of the organization of the Congress of 1887, after the distinguished success of the Dental Section of that of 1881, and the entire harmony that had marked all the deliberations of that meeting, and in view of the high scientific

status which the practice of dental surgery and dental medicine had attained in this country, was the source of the greatest surprise to the dentists of America, nor are they now prepared to believe that a specialty that had met with full recognition by the profession of England, is considered by the intelligence of the medical men of the United States entirely illegitimate.

When, on account of defections from the ranks of the supporters of the organization of the Congress of 1887, it became evident that its scientific success was jeopardized, and the aid of the dentists was desired, without a word of apology or explanation the Section was re-established. But they fear that this action was prompted by motives of policy, and not from a real change in the convictions of the committee. Under such circumstances, we do not believe that a proper regard for our own dignity or that of our confreres in other countries, permits us again to enter a meeting from which we have once been repulsed.

In another part of this number will be found the report of a conference of leading dentists, called together by the action of Prof. Taft, the President of the Section, and held in the City of Buffalo. There was a singular unanimity of sentiment concerning the duty of the dentists in this emergency. Prof. Taft acted as chairman, and himself expressed no decided opinion. Dr. Allport, who has, from the inception of the scheme for a Dental Section, been especially active in its advancement, expressed the belief that success was within our reach, and that all differences would be healed, but we think we are correct in saying that not one of those present believed that any decided steps should be taken, under existing circumstances, for the active organization of the Section. The most that was urged was that we should wait until the dissensions in the medical profession should be healed.

The resolution adopted provides for this. If the opposing medical factions unite, and the Congress promises to be something more than an enlarged session of the American Medical Association, we shall most heartily join with others in doing all possible to make the Dental Section one worthy the dentists of America. But we want no part in a rump Congress, and we have too high a regard for our calling to wish to see it take any part in a faction fight.

CLOSE OF THE VOLUME.

This number is the last for the year 1885. The record of the volume is one of which we believe that the publishers have no need to feel ashamed. We have presented to our subscribers nearly seven hundred pages of sound professional reading matter. We have published about one hundred original articles, some of them of great merit. We have given full reports of all the most important society meetings. We have kept the readers of the journal well informed concerning the current professional events of the year. We have not refrained from free and full comment upon whatever affected the interests of the profession. We have, in the book notices, kept the readers posted in the literature of the profession. In short, we honestly believe that Volume VI of the INDEPENDENT PRACTITIONER presents a fair epitome of all that has been said and done in dentistry during the year 1885.

And now, what about 1886? With added knowledge and experience, and with increased facilities, we think that Volume VII will greatly exceed Volume VI in interest and value. But to succeed we must have the co-operation of the profession. There is a place for an independent journal among us, and dentists owe a duty to their literature which can only be paid with their subscriptions. We have no manufacturing or mercantile house to sustain us. We have no traveling salesmen to secure for us a clientele, or to carry to dentists the knowledge of what we offer them. We must depend solely upon the merits of the journal to secure support, and upon the good words of its admirers to get new subscribers. Every dollar that is paid to the journal is expended upon it, for our only aim is to do something for a profession that we love. We hope to lose not one of our present subscribers. May we not also expect that they will show their appreciation of our labor by securing for it new patrons? It is *your* journal. Will you not give it your active support? Send in your subscription at once, and while you are about it ask your most intimate professional friend if he will not take it too. Whenever any subscriber sends in another name the deed is not forgotten, but is marked and fully appreciated. Many of you have expressed admiration for the journal; will you not give that approval a practical form by securing for us one new subscriber?

The publishers have determined that, with the commencement of the year, some changes shall be made that will give us more room for items of professional news. There will also be one change in the publishing board. There is an immense amount of labor necessary for the proper conduct of such a journal as this, and Dr. Wm. Jarvie finds his time so fully occupied with professional and business cares, that he is unable to devote to it the attention which it demands. He has, therefore, with the consent of his associates, transferred his interest to Dr. Albion M. Dudley, of Salem, Mass. We sincerely regret the loss of the prestige of the name of Dr. Jarvie, but we are consoled by the certain knowledge that his sympathy and active co-operation, so far as his other engagements will permit, will still be ours.

Dr. Dudley is well known to the profession as a concise and graceful writer, an indefatigable worker, and one whose sympathies are deeply engaged in everything that affects the welfare of his profession. He will give special attention to the interests of the Independent Practitioner in New England, and we bespeak for him the full consideration and co-operation of all the dentists in that section, who have any regard for their professional literature.

Current News and Opinion.

OBITUARY.

Died.—In Hartford, Conn., Nov. 11th, Dr. John M. Riggs.

Dr. Riggs was born in Seymour, Conn., Oct. 25th, 1810. He graduated at Trinity College, Hartford, in 1837, and soon after commenced the studies which were to fit him for the practice of dentistry. His operations upon human teeth gave evidences of remarkable skill and good judgment, and his fillings of soft gold and tin foil withstood the wear and tear to which they were subjected for several decades of years, with scarcely a perceptible change of appearance.

The first surgical operation ever attempted under the effect of an anæsthetic was performed by Dr. Riggs. His subject was Dr. Hor-

ace Wells, also of Hartford, whose office was in an adjoining room of the same building with Dr. Riggs. At a comic exhibition of "laughing gas," given by Mr. C. G. Colton, in Hartford, the evening before, Dr. Wells observed that a young man who had just recovered from the exhilarating effects of the gas had so abraded the skin on his hand as to cause the blood to flow somewhat freely, yet was not conscious of the injury until his attention was directed to the wound by Dr. Wells. Replies from several questions put to the youth deeply impressed Dr. Wells with the belief that "laughing gas" might be of value in surgical cases, by rendering patients insensible to pain. To satisfy himself on this point he determined to give the gas a practical test, and having a superior molar in his own mouth, which at times had given him slight annoyance, he decided to inhale the gas and have the tooth extracted. Mr. Colton was engaged to administer the gas, and when Dr. W. was fully under its influence Dr. Riggs applied the forceps and removed the molar. The experiment proved a perfect success. "Anæsthesia" was thus discovered, and to the world was given one of its greatest blessings. This was on the 11th of December, 1844, which antedates the use of ether as an anæsthetic for nearly two years. After this the nitrous oxide gas was used by both Drs. Wells and Riggs, for several years.

Dr. Riggs achieved quite a reputation in the professional world in his arduous efforts towards learning the nature and arresting the progress of the disease called *pyorrhœa alveolaris*, sometimes known as "Riggs' disease." Probably no other man ever gave to this troublesome malady more thought or greater attention than did Dr. Riggs. As a member of our profession he won an honorable position, and was much esteemed by all who knew him. C. E. F.

CIRCULAR LETTER TO MEMBERS OF SECTION VII. "PHYSIOLOGY AND ETIOLOGY," OF THE AMERICAN DENTAL ASSOCIATION.

Dear Doctor—In order to make such a showing of work as our Section should do at the next annual meeting of the Association, it is deemed best to proceed at once to the assignment of subjects, in order to give time for investigation.

At the last meeting of the Section a report was adopted and presented to the Association, saying that we would investigate the following subjects, and report on the same at the next meeting.

(1) Investigation of the Normal and Abnormal Conditions of the Oral Secretions.

(2) The Tongue in Health and Disease.

(3) Personal Hygiene for the Dentist.

(4) Continuation of the Study of the Etiology of Dental Caries.

What we wish now is for you to select one or more of the above subjects, or special parts of these subjects, and prosecute investigation, *as original and new as possible*, in the department you may select. What we need is something *fresh*, even if inconsistent with cherished theories and opposed to the accepted teachings. We wish to progress. We wish to take a step forward, and to that end we must make new discoveries. What will *you* undertake to do by the the next meeting?

If, however, you have anything else on hand which you are working upon, and wish to report it, that will be fully as acceptable as any of the above subjects. Please notify the Secretary, as soon as possible, of the work you intend to do and to report upon, that he may arrange the same in the schedule for the next report of the Section, and that he may assist you as much as possible.

You are aware that, at the last meeting of the Association, an appropriation of two hundred dollars was made to this Section for its use in the prosecution of *original* investigation. You are entitled to a share of this amount for the defraying of expenses you may incur in the prosecution of such investigations. *Provided*, however, that the results of that investigation, so assisted by this fund, shall not be given to any other society nor to any journal before the next meeting of the Association, but shall be first given to the world at that meeting.

Please take a part, be it ever so little, in the work of the Section, and notify the Secretary as soon as possible of your selection. Each must bear his part for the good of the Section and the advancement of knowledge.

H. A. SMITH, Chairman,

A. H. THOMPSON, Secretary.

Topeka, Kan.

CONNECTICUT VALLEY DENTAL SOCIETY.

At the annual meeting of the Connecticut Valley Dental Society, held in Springfield, Mass., Nov. 5 and 6, the following officers were elected for the ensuing year:

President—Dr. E. A. Stebbins, Shelburne Falls, Mass.

First Vice President—Dr. I. N. Davenport, Northampton, Mass.

Second Vice-Presedent—Dr. F. W. Williams, Greenfield, Mass.

Secretary—Dr. Geo. A. Maxfield, Holyoke, Mass.

Assistant Secretary—Dr. A. J. Nims, Turner's Falls, Mass.

Treasurer—Dr. W. H. Jones, Northampton, Mass.

Executive Committee—Dr. L. C. Taylor, Hartford, Conn.; Dr. J. P. Parker, Bellows Falls, Vt.; Dr. W. F. Andrews, Springfield, Mass.

GEO. A. MAXFIELD, Secretary.

A GOOD INVESTMENT.

Two cents a day set aside from ordinary expenses will pay for *three* of the leading dental journals published. This small sum, if thus invested, will yield the best sort of interest by furnishing to subscribers much valuable reading matter, that cannot fail to greatly benefit them in the practice of their specialty. Two cents a day in this way expended would hardly be missed from even the most scanty income—and who does not daily part with a much larger sum for a less worthy purpose? In the many complimentary letters received, referring to the INDEPENDENT PRACTITIONER, more than once has it been asserted that a single suggestion found in the journal has amply paid for a year's subscription.

Let it be borne in mind that "the professional man who does not read the literature of his calling, will always have place in the rear of his profession." C. E. F.

A TREATISE ON DIPHTHERIA.

J. H. Chambers & Co., of St. Louis, the well-known medical publishers, have in press a work on Diphtheria and Croup, by Dr. A. Sanné, of Paris, translated and annotated by Henry Z. Gill, A. M., M. D., LL. D. It will be handsomely illustrated, and will, no doubt, meet with a large sale.

AMERICAN ACADEMY OF DENTAL SCIENCE.

At the 18th annual meeting of the American Academy of Dental Science, the address was delivered by Dr. W. C. Barrett, of Buffalo, upon the "Diseases of the Period of Dentition." A copy was requested for publication.

The officers elected for the ensuing year are as follows:

President—Dr. J. H. Batchelder.
Vice-President—Dr. C. P. Wilson.
Recording Secretary—Dr. E. E. Hopkins.
Corresponding Secretary—Dr. E. B. Hitchcock.
Treasurer—Dr. E. H. Smith.
Librarian—Dr. H. C. Meriam.
Executive Committee—Drs. Chas. Wilson, E. C. Briggs, J. S. Mason.

E. E. HOPKINS, Recording Secretary.

Boston, Nov. 5, 1885.

A WANT SUPPLIED.

Although tooth brushes of every conceivable design for brushing the natural organs are everywhere to be found, no one, until recently, has furnished anything suitable for artificial dentures. The Florence Brush Company have now provided just the needed thing. As it is a somewhat delicate matter for wearers of artificial teeth to ask for such brushes at variety shops, why would it not be well for dentists to keep a supply, and furnish to such of their patients as need them.

C. E. F.

MASSACHUSETTS DENTAL SOCIETY.

The next annual meeting of the Massachusetts Dental Society will be held on Thursday and Friday, Dec. 10 and 11, at No. 160 Tremont Street, Boston. Drs. W. H. Atkinson and J. N. Farrar, of New York, will present matters of interest to the profession; also a paper by a prominent medical specialist of this city. Other members of the profession will contribute.

"PREVENTIVE MEDICINE."

PROPHYLACTIC, ANTISEPTIC, DISINFECTANT,

LISTERINE

NON-TOXIC, NON-IRRITANT, NON-ESCHAROTIC.

These properties added to the absolute safety of Listerine, its agreeable character and uniform strength, concentrates into this preparation every requisite of a perfect Prophylactic, and gives it undoubted superiority over all other Antiseptics, especially for internal use. The well-known therapy of the several ingredients of Listerine confirms its claims for more than merely mechanical germicidal properties.

Formula.—LISTERINE is the *essential Antiseptic* constituent of Thyme, Eucalyptus, Baptisia Gaultheria and Mentha Arvensis in combination. Each *fluid drachm* also contains *two* grains of *refined* and *purified* Benzo-Boracic Acid.

Dose.—One teaspoonful *three* or *more* times a day (as indicated). As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used *ad libitum*, diluted as desired.

The universal commendation of LISTERINE by Physicians and Scientists of all Schools throughout the United States, after five years' thorough Clinical Experience, has fully established its value in **PHTHISIS, DYSPEPSIA, DIPHTHERIA, CATARRH, DYSENTERY, SCARLATINA, SMALL-POX, ERYSIPELAS, TYPHOID** and other **FEVERS**: and as the most grateful and pleasant disinfectant and prophylactic for **VAGINAL INJECTIONS** in **OBSTETRICS, LEUCORRHŒA, GONORRHŒA**, and, notably, for the hands, after Surgical and Gynæcological Operations.

This accumulated evidence of merit indicates its special adaptability to

DENTAL PRACTICE.

The testimony of its value in the treatment of ORAL DISEASES, in Dental Practice, is set forth in a special pamphlet on that subject to be obtained gratis on application, together with many Valuable Clinical Notes and Reprints by Eminent Surgical, Medical and Dental Authors.

☞ Three Reprinted Lectures on **CHRONIC NASAL CATARRH**, (illustrated by forty wood cuts,) by Prof. GEORGE M. LEFFERTS, M. D., New York City, are now ready for delivery, free of cost, to those who mention this Journal in making application.

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New Office and Laboratory. - 116 Olive Street, ST. LOUIS.

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HARDMAN'S WHITE ALLOY

Takes the place of gold for filling front, or any teeth.

PRICE, $3.00 PER OZ.

Test for Color—Place a button of Amalgam, that has one surface polished, into a solution of 40 to 60 grs. of sulphuret of Pottassa in 1 oz. of water. Let remain 24 to 48 hours.

Test for Leakage—Fill a small glass test tube with it, just as you would a cavity in a tooth, and drop it into a bottle containing an alcoholic solution of red aniline.

This Alloy Stands These, and Any Other Tests Deemed Requisite to Perfection.

HARDMAN'S SUPERIOR AMALGAM

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For sale by S. S. WHITE DENTAL M'F'G CO., or sent by mail by the manufacturer.

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THE FOLLOWING TESTIMONIALS ARE RESPECTFULLY OFFERED.

Dibble at present is ahead on Amalgam.
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I believe it to be the best article of the kind in use.
W. H. DWINELLE, M. D., 27 West 34th St., New York.

I take pleasure in recommending it as the best now known.
GEORGE H. PERINE, 74 West 50th St., New York.

Have used it three years, and it has given me better results than any other.
O. E. HILL, M. D. S., 160 Clinton St., Brooklyn, N. Y.

I am satisfied it is the best in use. I can recommend it to the profession.
C. E. GRAVES, 393 Jay Street, Brooklyn, N. Y.

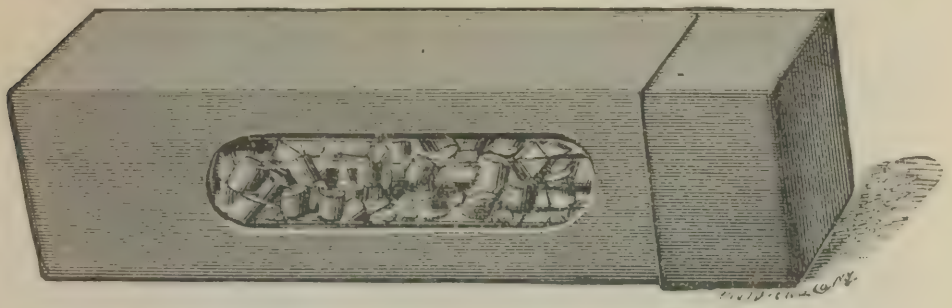
It is the best I have ever used. MILES H. DODGE, 20 E. 33d St., New York.

$5.00 per oz. or 3 oz. for $12.50. Sent by Mail.

3-5-AN-½.

EXTRA PLIABLE DECIMAL GOLD ROLLS.

USE OUR ROLLED GOLD.—THE BEST IN THE WORLD.



(This Engraving represents a Phial of size 1 of the above designated Gold, inclosed in a Box.)

Gold Foil and Gold Rolls, per 1-10 ounce,	$3 00.	Per ounce,	$28.00
Extra Pliable Decimal Gold Rolls, per 1-10 ounce,	3.50.	Per ½ ounce,	17.00
Untrimmed Foil, per 1-5 ounce book,			5.50
Ideal Cement, per package, with Pigments,			1.00
Rowan's Ideal Alloy, No. 1, per 1 oz. $5.00, 2 ozs. $9.00, 4 ozs.			16.00
Rowan's Ideal Alloy, No. 2, per 1 oz. $3.00, 2 ozs. $5.50, 4 ozs.,			10.00
Tin Foil (our make), very tough, per book,			.50

Try some of our "Ideal" Cement Filling and "Ideal" Alloy.

Appended are testimonials for our preparations of Gold from well-known gentlemen:

I have used the Rolled Gold of Edward Rowan & Co., and like it very much. I prefer high numbers—30, 60 and 120—for facility of adaptation to walls of cavities, capacity to bear high annealing and making solid work, I know no superior make.

W. H. ATKINSON,
41 E. 9th Street, N. Y.

October 23, 1882.

271 N. Eutaw Street. BALTIMORE, Md, June 5th, 1883.

GENTLEMEN—I have used nearly all of the last ounce of your "Extra Cohesive" Decimal Gold Foil No. 4, and it affords me pleasure to inform you that it has *proved* to be a *first-class article* in every respect. It is *cohesive* and *tough* in the *highest degree*, yet possessing *less harshness* than is usually found in cohesive foils. I cheerfully thus refer to it, and so long as you continue to make such foil, I want nothing better. Very respectfully,

JAS. H. HARRIS, M. D., D. D. S.

No. 100 Boylston Street. BOSTON, MASS., June 30, 1883.

Sirs—I have used your Rolled Gold for several years. When I wish to use *cohesive* gold, I prefer your No. 30 Rolled to any gold with which I am familiar. It is very tough, soft and cohesive. In short, pleasant and easy to work, and makes a compact, even and finished filling.

Yours truly,
L. D. SHEPARD,
Late Professor of Operative Dentistry, Harvard University.

S. H. GUILFORD, A.M., D.D.S., (*Professor of Operative and Prosthetic Dentistry, Phila. Dental College,*) has permitted us to state that he uses and recommends our "Gold Rolls."

DR. H. J. MCKELLOPS, of St. Louis, writes us, under date September 16, 1884, "You may use my name in connection with your Gold with pleasure."

H. C. REGISTER, M. D., D. D. S., of Philadelphia, writes us, "You are permitted to use my name in recommending your Gold, as second to none in the world!"

CHAS. L. STEEL, M. D., D. D. S., of Richmond, Va. (*Demonstrator Operative Dentistry, University of Maryland*). DEAR SIRS—Your last ounce of Gold duly received, and, as usual, works superbly. I have used many makes of Cohesive Foil, but for some time past have confined myself to yours exclusively, as I find none other so near perfection.

A. H. FULLER, M. D., D. D. S. (*Professor of Operative Dentistry, Missouri Dental College*). Should you so desire you may state that I have been using your Gold for the past year or more, and find it first-class in every respect. Shall send you an order in a few days for more.

WM. CARR, M. D., 35 West 46th Street, New York, permits us to state that he endorses our Golds. He uses Nos. 3 and 4 soft; No. 60 Rolled; and Gold Rolls.

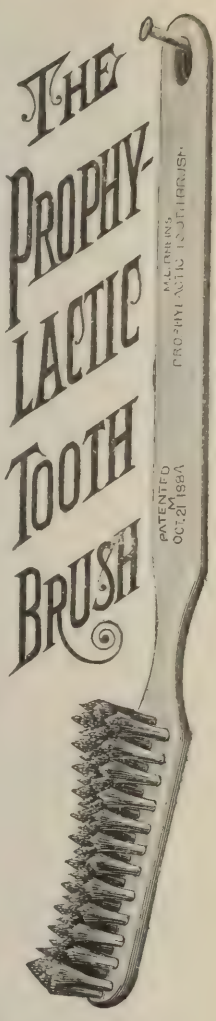
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ADULTS' AND CHILD'S SIZES.



The only Tooth Brush made that has received the unqualified endorsement of the Dental Profession.

Used as directed, it is a "preventive of disease."

Each brush in a box with full directions for use.

Made in hard, medium and soft; and when desired, extra soft.

Every Brush Warranted.

Circulars, Price, Etc., Sent on Application.

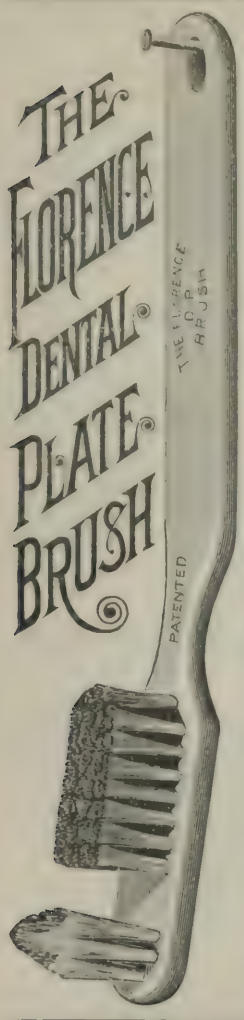
Any Dentist who has not tried this or our Dental Plate Brush, can procure a sample at the dozen price by addressing the

FLORENCE MANUFACTURING CO.

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23-25 Greene St, NEW YORK. 185-187 Dearborn St., CHICAGO, Ill.

HAS IT BEEN TRIED?



NEW ORLEANS, LA.,
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I HAVE USED THE BRUSHES, BOTH THE SOFT TOOTH BRUSH AND THE PLATE BRUSH, MANUFACTURED BY THE FLORENCE MANUFACTURING COMPANY, AND THINK THAT HENCEFORTH THEY WILL PROVE A *SINE QUA NON* TO ALL WHO KNOW THEIR VALUE.

THE PROPHYLACTIC TOOTH BRUSH IS CERTAINLY A LONG STEP IN ADVANCE OF ANYTHING PRODUCED HERETOFORE, WHILE THE DENTAL PLATE BRUSH FILLS A LONG FELT WANT.

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SEPT. 24, 1885.

TWO MONTHS' CONSTANT USE OF ONE OF YOUR PROPHYLACTIC BRUSHES BY MYSELF, AND OF YOUR PLATE BRUSH BY MY WIFE, CONFIRMS US IN THE OPINION THAT THEY ARE EMPHATICALLY THE VERY BEST BRUSHES EVER PUT ON THE MARKET.

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CUT OF FOIL ENVELOPE.

COHESIVE, SOFT No

WOLRAB'S PURE CHEMICALLY

GOLD FOIL

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IMPORTERS of DENTISTS SPECIALTIES

SOLE AGENTS FOR THE U. S.

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Foil, $4.00 per ⅛ oz., $15.00 per ½ oz., $30.00 per 1 oz.

On orders of two ounces and more at a time a reduction of 50 cents per ounce will be given.

This gold is made in reference to the HERBST method of filling teeth with the engine. It has also proven a very desirable article for the *mallet* and *hand-pressure.*

We claim it to be superior to any other make for its peculiar *softness.* It easily adapts itself to the walls of the cavity, and when properly manipulated it makes a *solid* and *cohesive filling.* If it is to be used cohesively, a slight *warming over* the flame will have the desired result.

Very good reports have been received from prominent practitioners.

Timme's Imported German Phosphate Cement, per box, $1.00.

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WOLRAB'S GERMAN GOLD.

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CHEMICALLY PURE

for the HERBST METHOD

MADE EXPRESSLY of filling TEETH

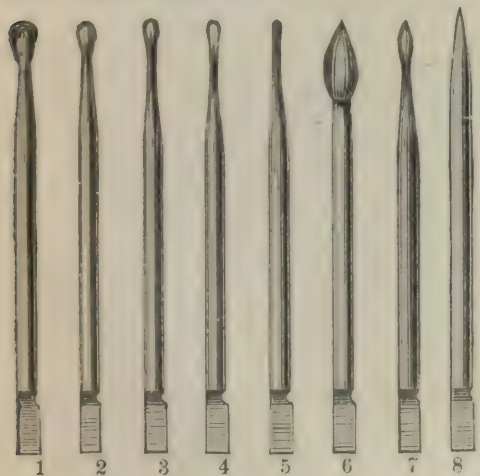
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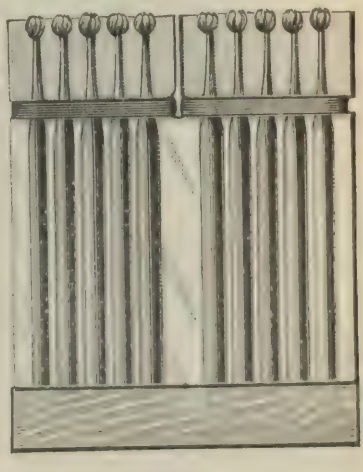
Cylinders, $4.50 per ⅛ oz., $17.00 per ½ oz., $34.00 per 1 oz.

Instruments for the Herbst Method.



Made of Agate, per set, - - - $10.00
The same made of Steel, as shown in the cut, per set, - - - - - - 4.00

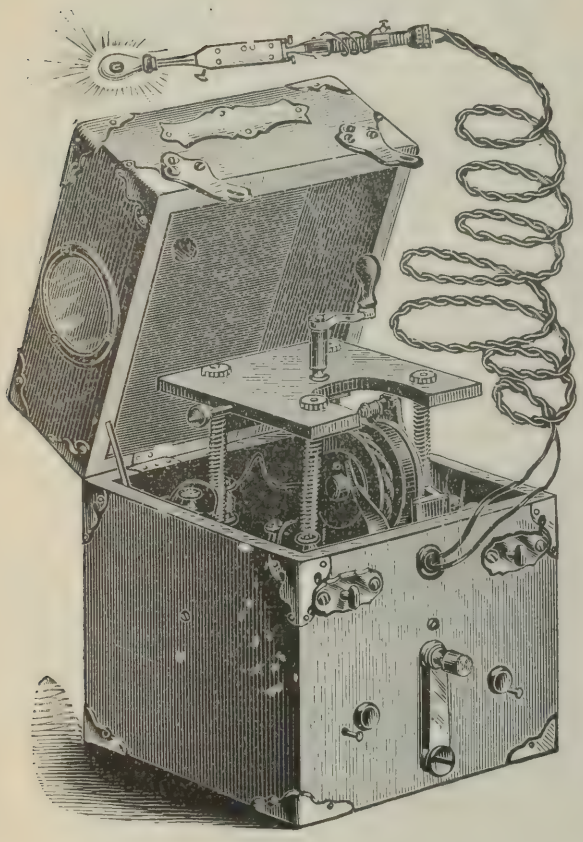
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In boxes of ten cards, - - - 25.00

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The St. Clair Electric Dental and Surgical LAMP.



THE ST. CLAIR DENTAL AND SURGICAL INCANDESCENT ELECTRIC LAMP is the most compact and efficient apparatus for dental and surgical operations in the world.

There has long been a demand for a small light that could be introduced into the mouth and other cavities of the human anatomy, and the

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September 8, 1884.

MR. E. KEARSING:—After using your gold foil about five years with great satisfaction, I feel that I cannot get along without it. It is especially valuable for small cavities, and for fine work in approximal cases. Respectfully, J. N. FARRAR.

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September 13, 1884.

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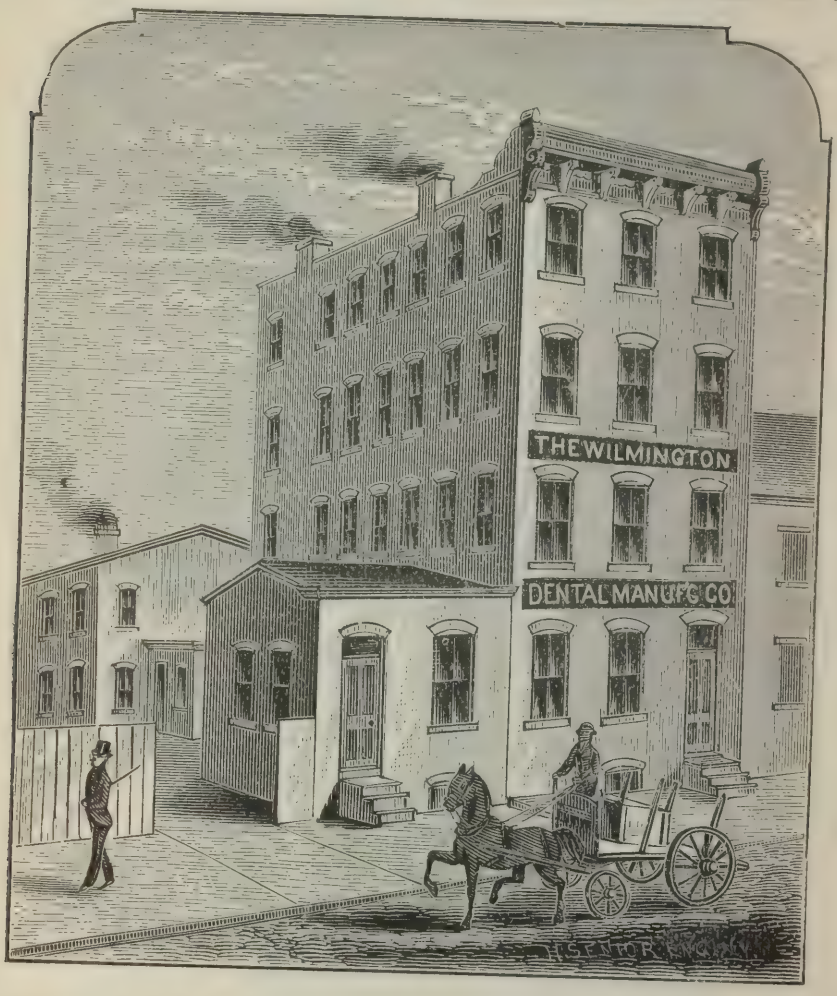
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Physicians who use Cod Liver Oil, or who have discontinued its use in consequence of its offensiveness or its injury to digestion, should not fail to give this preparation consideration. It is so far in advance of the Emulsions and all former preparations of the Oil that they bear no comparison with it.

1st. It contains 52 per cent. of *pure Cod Liver Oil* combined with *Condensed Milk.*

2d. Both the *Oil* and *Milk* are perfectly digested and wholly assimilable, and consequently will agree with the most delicate stomach, while the use of the *plain Oil* or the *Emulsions* soon injures digestion to such an extent that but a small portion is assimilated.

3d. It is so palatable that many Physicians administer it to delicate patients as a preparation of cream.

4th. The administration of *plain Cod Liver Oil*, or the *Emulsions* now in use, will almost invariably exhaust the peptic secretions of the stomach in its effort to peptonize a substance only digested in the duodenum and also cause unpleasant eructations and nausea.

5th. A trial of PEPTONIZED COD LIVER OIL AND MILK will convince any Physician that its reconstructive properties will prove five times greater than *plain Oil* or the *Emulsions* now in use.

6th. The keeping qualities of PEPTONIZED COD LIVER OIL AND MILK have been thoroughly tested at all decomposable temperatures.

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8th. PEPTONIZED COD LIVER OIL AND MILK is furnished at the same price as *plain Oil* or the *Emulsions*, although it costs one-third more to produce.

9th. *Physicians or Druggists need not hesitate to order* PEPTONIZED COD LIVER OIL AND MILK, *for if it does not prove satisfactory in every respect, we will immediately refund its cost.*

We also manufacture the above preparation combined with HYPOPHOSPHITES OF LIME AND SODA.

We will furnish gratuitously to any Physician who will pay carriage a pint bottle of the above preparation.

Send for Pamphlet giving a full description.

FOR SALE BY DRUGGISTS.

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NEW YORK.

8-4-AN-1

The New York Dental Manufacturing Co.,

DEPOT, 1300 BROADWAY, COR. 34th STREET.

New York City, January 1, 1884.

We call attention to letters below, in regard to our Hand-Piece, which have lately been received:

NEW YORK, December 21, 1881.

Dear Sir—Allow me to say, after using your "Universal Chuck" Hand-Piece for over twelve months, that it is the best I ever saw, and gives me an opportunity of using any and all of my old burs. It is, I believe, well made, and to-day runs as well or better than the first day I used it. Very truly, A. L. NORTHROP, 44 West 46th St.

No. 100 BOYLSTON STREET, BOSTON, January 30, 1882.

MR. GEO. E. HODGE: *Dear Sir*—It has been my custom for years to get all the Engine Hand-Pieces as they are put upon the market. I have thus had your several forms, and have been familiar with the changes and improvements. I am happy now to authorize you to use my name in commendation of your latest form. It runs smoothly and evenly, holds the bit firmly, and is easily managed. The principle of the Universal Chuck is very advantageous and economical, and the placing of the set nut at a distance from the mouth end of the tool is admirable. From my knowledge of its mechanism, and an experience of many months, I consider it very durable. It is also very cleanly. Yours truly, L. D. SHEPARD.

CHICAGO, May 2, 1883.

GEO. E. HODGE: *Dear Sir*—I have used your Hand-Piece for over two years with great satisfaction. The improved one you sent me I have had in constant use for over twenty months and to all appearances it is for practical purposes as good as new. I can say, therefore, it is durable and requires but little care to keep it in order. No oil escapes on the hands of the operator or about the patient's mouth. It always holds the bit firm and steady and runs smoothly, wthout the usual jarring and jumping of the bur. I give it the decided preference over any Hand-Piece in use of which I have knowledge.

Yours truly, J. N. CROUSE, 2101 Michigan Ave.

39 Boulevard, Haussmann, Paris.

Dear Mr. HODGE—In answer to your inquiry, permit me to say, that for the past year I ave used no other Hand-Piece than yours, for the dental Engine, except experimentally. The Hodge Hand-Piece is so true and steady and holds the instrument so firmly, that I have practically ceased to use my six other hand-pieces. On my return to New York I hope to be favored with any improvements you may have, for I like to use an engine that takes in the instruments of any and all makers on both sides of the Atlantic.

Yours faithfully, E. A. BOGUE.

We are permitted to publish the following extract from a letter of Chas. S. Tomes, Esq., 37 Cavendish Square, London, England, as a "bona fide expression" of his opinion. "It is a most valuable Hand-Piece, I think, far the best I have ever had, and the convenience of being able to use up any of one's old points, is a great one, when one has mallets, files, right angles and the like, carefully adapted by their respective makers, not to be interchangeable."

BOSTON, September 26, 1883.

Dear Sir—Having used your Hand-Piece for dental engine for over two years constantly I find it to be all that can be desired for simplicity, durability and perfection.

ISAAC J. WETHERBEE. D. D. S., President Boston Dental College.

PORTLAND, ME., October 1, 1883.

MR. HODGE: *My Dear Sir*—I am very much pleased with your Hand-Piece, which I have used for some months. I consider it a very perfect instrument. It carries the bur with accuracy and steadiness, and changes are easily made. I prefer it to any Hand-Piece I ever used.

Yours very truly, THOMAS FILLEBROWN.

ST. LOUIS, MO., October 8, 1883.

FRIEND HODGE—Having used your Hand-Piece for the last three years, it gives me pleasure to say I find it very durable, and I use it with great satisfaction.

Yours, H. J. MCKELLOPS.

25 West 27th Street, New York, January 1, 1884.

MR. HODGE—The Hand-Piece which I bought of you three years ago, is running as true to-day as the first time I used it. It has been in constant use during all this time, and I cannot see any reason why it may not continue to run true and be as useful for years to come as it has been in the past. As it has not required any duplication of parts nor involved any expense for repairs, it has proven to be not only the best but the cheapest Hand-Piece yet produced. With the large assortment of Stoned Burs of your manufacture, which I have also found superior, the difficulties of the dentist and the sufferings of the patient are reduced to a mere minimum. Yours, NORMAN W. KINGSLEY.

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